This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

Eng 1070.40

Harvard College Library

FROM

The Commission

ANNUAL REPORT

OF THE

WATER SUPPLY COMMISSION

OF

PENNSYLVANIA

1915

HARRISBURG, PA.:
WM. STANLEY RAY, STATE PRINTER
1916.

Eng 1070.40

HARVARD COLLEGE
JUN 1 1923
LIBRARY

[illegible] Commission

WATER SUPPLY COMMISSION OF PENNSYLVANIA

CHAIRMAN.

*JOHN BIRKINBINE, Cynwyd, Montgomery County.
(Died May 14, 1915.)

VICE CHAIRMAN.

†BENJAMIN K. FOCHT, Lewisburg, Union County.
(Resigned February 28, 1915.)

SECRETARY.

THOMAS J. LYNCH, South Bethlehem, Northampton County.

COMMISSIONER OF FORESTRY.

ROBERT S. CONKLIN, Columbia, Lancaster County.

COMMISSIONER OF HEALTH.

DR. SAMUEL G. DIXON, Ardmore, Montgomery County.

CHIEF ENGINEER.

CHARLES E. RYDER, Harrisburg, Dauphin County.

CHIEF CLERK.

WILLIAM F. SHERIDAN, Philadelphia, Philadelphia County.

*ROBERT A. ZENTMYER, Tyrone, Blair County.
(Appointed August 23, 1915, vice John Birkinbine, deceased.)

†OLIVER S. KELSEY, Flemington, Clinton County.
(Appointed December 1, 1915, vice Benjamin K. Focht, resigned.)

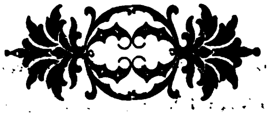


TABLE OF CONTENTS

Page

Letter of Transmittal, ... 9

CHAPTER I.

WORK OF THE WATER SUPPLY COMMISSION DURING THE YEAR 1915 BRIEFLY DESCRIBED.

Introduction, ... 11
Incorporation of Water and Water Power Companies, ... 11
Supervision of the Design and Construction of Dams and Investigation of the Stability of Existing Dams, ... 11
Encroachments in Streams, ... 12
Bridges, Fills and Miscellaneous Obstructions. including Walls, Piers, Ice Breakers, etc., ... 12
Topographical Survey,—Schuylkill River, in and through the City of Reading, ... 12
Flood Damage, ... 13
Stream Gaging, Flood Warning and Precipitation, ... 14
Inventory of Water Resources, Act 25th July, 1913, P. L. 1233, ... 14
Pymatuning Reservoir Project, ... 15
Policy Recommended for Administrating the Control and Use of Pennsylvania Streams, ... 16
Succeeding Chapters, ... 16

CHAPTER II.

COMPREHENSIVE POLICY RECOMMENDED FOR ADMINISTRATING THE CONTROL AND USE OF PENNSYLVANIA STREAMS.

Introduction, ... 17
Industrial Development Restricted by Inadequate Water Supply and by Floods, ... 17
Topographic Surveys, ... 18
Hydrographic Studies, ... 18
Rainfall Studies, ... 18
General Plans, ... 18
Water Supply Commission,
Furnishing General Information, ... 19
Advice and Direction, ... 19
Outline of General Plans for Water Control and Utilization Problems, 20
Supervision of Plans, Construction, and Maintenance, ... 20
Supervision of Obstructions and Encroachments, ... 22
Division of State into Districts, ... 22
Code for Water Control, ... 22
Essentials of Water Control Programs, ... 22
Function of the State should be Educational, Regulatory and Advisory, 23
Co-ordination of Public Agencies, ... 24
Water Power, ... 25
Typical Examples of Water Control and Regulation, ... 25
Cost of a General Survey of the River Systems of Pennsylvania, ... 25

CHAPTER III.

DAMS.

Comprehensive Policy Outlined for Supervision over Construction and Maintenance of, ... 27

Page
Modern Tendency toward Construction of Dams Constantly Increasing in Heights, Impounding Enormous Quantities of Water, ... 28
Engineering Staff Necessary for Adequate Supervision, ... 29
Inadequate Appropriation for Supervision False Economy, ... 30
Examined during 1915, ... 32
Maintenance, ... 33
Spillways, ... 34
Leakage, ... 35
Bulletins, ... 35
Dams, Issued for the Information of those interested in Applications for the Construction or Repair of, ... 35
Weir Measurements, Issued for Guidance in Measuring Small Flows, 35
Coatesville Dam, ... 35

CHAPTER IV.

PYMATUNING RESERVOIR PROJECT.

Introduction, ... 42
Progress Report, ... 43
Hydrographic Investigations, ... 43
Discharge Measurements, ... 43
Property Surveys, ... 45
Permanent Bench Marks, ... 45

CHAPTER V.

WATER SUPPLY AND WATER POWER COMPANIES.

Water Supply Companies, ... 46
Water Power Companies, ... 49

CHAPTER VI.

FLOOD WARNING AND PRECIPITATION.

Introduction, ... 50
Flood Warnings, 1915, ... 50
Precipitation, ... 60
General Resume of Monthly Precipitation and Annual Summaries, 96

CHAPTER VII.

HYDROGRAPHY.

Stream Flow Conditions During the Year, ... 100
Summary of Discharge per Square Mile, ... 100
Comparison of Run-off in Different Sections of Pennsylvania, ... 104
New Stream Gaging Stations, ... 105
Abandoned Stream Gaging Stations, ... 105
United States Geological Survey Stations, ... 106
Gaging Station at Huntingdon, ... 106
Inspection Trips and New Discharge Curves, ... 107
Descriptions of Basins, ... 107
Drought of 1914, ... 108
Delaware Basin, ... 108
North Branch Susquehanna and West Branch Susquehanna Basins, 109
Summary of Susquehanna Basin Conditions, ... 109
Ohio Basin, ... 109
Behavior of Limestone Streams During Drought, ... 110

APPENDIX.

HYDROGRAPHIC DATA FROM OCTOBER 1, 1914, TO SEPTEMBER 30, 1915.

Map Showing Location of Gaging Stations, ... 5
Daily and Monthly Discharge at Gaging Stations, ... 5
Index to Hydrographic Data, ... 399

LIST OF TABLES

No. Page

DAMS.

1. Number of Permits Issued for the Construction and Repair of Dams, Progress Examinations During Construction, and Examinations of Existing Dams, ... 41

WATER SUPPLY COMPANIES.

2. Number of Water Supply Companies Incorporated each Year from May 4, 1905, to December 31, 1915, and Present Status, ... 46
3. Water Supply Companies Incorporated During the Year 1915, ... 47
4. Water Supply Companies Incorporated in 1915 Which Are in Operation, ... 47
5. Consolidation of Water Supply Companies Effected During the Year 1915, ... 48

FLOOD WARNING.

6. Predicted and Actual Stages Reached January 7-9, 1915, ... 51
7. Predicted and Actual Stages Reached January 19-20, 1915, ... 53
8. Predicted and Actual Stages Reached February 2-3, 1915, ... 54
9. Predicted and Actual Stages Reached February 15-17, 1915, ... 55
10. Predicted and Actual Stages Reached February 25-26, 1915, ... 56
11. Predicted and Actual Stages Reached June 3-4, 1915, ... 57
12. Predicted and Actual Stages Reached July 8-10, 1915, ... 58
13. Predicted and Actual Stages Reached August 4-8, 1915, ... 59

PRECIPITATION.

14. Precipitation Stations Established by Water Supply Commission, 61
15. Daily, Monthly and Annual Precipitation, ... 62

HYDROGRAPHY.

16. Summary of Discharge, in Second-feet per Square Mile, for the Year Ending September 30, 1915, Delaware Basin, ... 101
17. Summary of Discharge, in Second-feet per Square Mile, for the Year Ending September 30, 1915, Susquehanna Basin, ... 102
18. Summary of Discharge, in Second-feet per Square Mile, for the Year Ending September 30, 1915, Ohio Basin, ... 103
19. Comparison of Run-off in Second-feet per Square Mile of Various Rivers in Pennsylvania for the Period 1909-1913, ... 104
20. Stream Gaging Stations Established Between October 1, 1914, and September 30, 1915, ... 105
21. Comparison of Limestone and Non-Limestone Yields; Per Cent. of Yield of Precipitation, ... 110
22. Drought of 1914. Monthly Summary Showing Run-off, Precipitation and Relation of Run-off to Precipitation, ... 111

LETTER OF TRANSMITTAL.

Office of the Water Supply Commission,
Harrisburg, December 31, 1915.

His Excellency, the Governor of the Commonwealth of Pennsylvania:

The Members of the Senate and the House of Representatives of the Commonwealth of Pennsylvania:

Gentlemen: In compliance with the requirement contained in the Act of the General Assembly of the Commonwealth of Pennsylvania entitled:

> "An act creating the Water Supply Commission of Pennsylvania; defining its duties; fixing the scope of its authority and powers, and making an appropriation for the payment of the salaries and expenses connected therewith,"

approved the fourth day of May, Anno Domini one thousand nine hundred five, the Water Supply Commission of Pennsylvania respectfully submits its report for the year 1915.

WATER SUPPLY COMMISSION OF PENNSYLVANIA,
THOMAS J. LYNCH,
Secretary.

REPORT

OF THE

WATER SUPPLY COMMISSION OF PENNSYLVANIA

1915.

CHAPTER I.

INTRODUCTION.

The work of the Water Supply Commission during the year 1915 may be briefly described as follows:

INCORPORATION OF WATER AND WATER POWER COMPANIES.

Nine applications for the incorporation of companies to supply water to the public for domestic purposes and three applications for the incorporation of water power companies were approved by the Commission. The number of applications for the incorporation of water and water power companies shows a marked decrease. During the five years prior to the creation of the Commission as many as 150 such corporations were created in one year, and during this same period there were never less than 100 such incorporations during any one year.

SUPERVISION OF THE DESIGN AND CONSTRUCTION OF DAMS AND INVESTIGATION OF THE STABILITY OF EXISTING DAMS.

Fifty-one applications for the construction of new dams were received or considered by the Commission and 43 permits issued. Three of these proposed dams exceed 40 feet in height, the maximum height being 68 feet. Twenty-nine applications for permission to make changes or repairs to existing dams were received and 23 approved. Construction work was continued on 32 projects under permits issued prior to 1915. The number of existing dams examined was 348, and repairs or alterations were ordered on 121 of these. The total number of field examinations made in connection with dams was 626.

In order to prevent such catastrophes as those at Johnstown and Austin, the Commission has adopted a comprehensive policy for the supervision of dams, the details of which are set forth in Chapter III.

The staff for the inspection and supervision of dams which can be provided with the present appropriation is inadequate to enable the Commission to perform its duties in as efficient a manner as is required. Such a staff should be adequate and competent for

> Investigating and reporting on plans submitted for new dams and for inspecting such dams during their construction;
> Examining and reporting upon all existing dams which by their failure may cause loss of life or property and recommending changes which are required to insure the safety of such dams;
> Inspecting changes in dams as they are made;
> Examining from time to time such dams as require examination to insure that they are maintained in safe condition.

Inadequate appropriation for this important work is false economy, for the reason that a single dam failure may cause a greater loss than the total cost for adequate supervision for a generation.

ENCROACHMENTS IN STREAMS.

Four hundred and eighty-five applications for encroachments were approved during 1915, of which 402 were for bridges, 21 for fills and 62 for miscellaneous obstructions, including walls, piers, ice breakers, etc. In most cases an examination of the site of the proposed work was required, while 220 separate inspections were made of completed work to determine whether it had been performed in accordance with the approved plans and conditions contained in the permit.

TOPOGRAPHICAL SURVEY,—SCHUYLKILL RIVER IN AND THROUGH THE CITY OF READING.

A complete topographical survey of the Schuylkill River within the corporate limits of the city of Reading was made, at the request of the authorities of that city, for the purpose of establishing shore lines and to determine the location and effect of existing encroachments in and along the channel. This survey, including plan, profile and cross sections, has been plotted. The Commission, however, because of the limited appropriation at its disposal, has been unable to make the necessary hydraulic studies to determine just what changes should be made in the channel to permit it to discharge flood waters. It is hoped that the General Assembly, at its next session, will make liberal appropriation for work of this kind, because plans can only be prepared intelligently for the lessening of flood damage where the study of a stream is made in a comprehensive way. The number of communications received at this office from municipal authorities requesting the Commission to establish shore lines and to assist the municipal authorities in devising ways and means to prevent flood damage is constantly increasing.

FLOOD DAMAGE.

The year 1915 witnessed a number of destructive storms throughout the State. The counties of York, Lancaster, Elk, Crawford and Erie indicate the diversity in location of intense precipitation resulting in flood damage. The catastrophe at Erie, on August 3d, resulting in the loss of 34 lives and damage to property amounting to about $2,000,000, was caused by a flood in Mill Creek, a small stream draining 12½ square miles and flowing through the central part of the city. It is believed that this flood would have passed off without unusual damage if it had not been for the restricted and obstructed condition of the channel through the city. The Commission had previously called the attention of the city officials to the obstructed condition of the stream, and recommended that a comprehensive plan for its improvement be prepared and submitted to the Commission for approval; but nothing was done until after the catastrophe had occurred.

Flood damage is the penalty paid for ignoring the natural laws which govern stream flow. There does not appear to have been any supervision on the part of the State over structures or obstructions placed in or along streams of the Commonwealth until 1907, when the General Assembly enacted a law providing that no structure should be placed in any of the streams of this Commonwealth declared public highways without first obtaining the approval of the Water Supply Commission. The flood damage attributable to encroachments with which we are troubled today had its inception in nearly all instances long before the passage of that law, and large expenditures and long periods of time will undoubtedly be required to overcome their harmful effects.

The Federal Government for many years has exercised control over the navigable rivers, under its constitutional power authorizing it to regulate commerce between states, as defined by Act of Congress approved March 3, 1899, which provides for federal supervision, through the United States Army Engineer Corps, over all structures erected in navigable streams. It is important to note that the exercise of this federal power is confined almost exclusively to navigation and is not designed to prevent flood damage or increase the flood-carrying capacities of rivers.

The Act of Assembly approved June 25, 1913, vested additional powers in the Water Supply Commission, by placing under its jurisdiction the construction of dams, bridges and other structures in or along or across any of the streams of the Commonwealth, except in the river Delaware and its navigable tributaries. In the short period which has elapsed since the passage of this act the Commission has passed upon a large number of applications covering a variety of structures, and has been enabled to prevent the construction of dams of unsafe design and of serious encroachments in stream channels. Its labors have been of educational value, by awakening corporate, county and city officials to a realization of the importance of maintaining adequate channel capacities. The Commission, as a result of the work done under the provisions of this act, cannot impress upon the General Assembly too emphatically the need of establishing encroachment or shore lines along the banks of streams in densely populated districts, to serve as permanent boundary lines within which no encroachments shall be placed, and requiring, where possible, the removal of existing encroachments in order to afford a free and unobstructed channel for the discharge of flood waters. Such lines, once established, would make possible a close co-operation between the Water Supply Commission and municipal authorities, enabling the latter to enforce regulations with regard to the use of such lines.

STREAM GAGING, FLOOD WARNING AND PRECIPITATION.

Twelve new stream gaging stations were established, making 110 gaging stations from which the Commission received reports. Nine of the new stations were established in co-operation with the United States Engineer Office in Pittsburgh for the study of the flood problem in the western part of the State.

The Flood Warning Service was confined during the year almost entirely to the Susquehanna Basin.

Because of the many requests received from engineers throughout the Commonwealth, the Commission includes in the report for this year records since date of establishment of the various precipitation stations maintained by the Commission.

INVENTORY OF WATER RESOURCES, ACT 25TH JULY, 1913, P. L. 1233.

The Inventory of Water Resources was made to ascertain what streams were utilized and what remain unused, in order that a comprehensive plan might be evolved to secure their best development. To determine the best course, studies of all phases of the water question and their inter-relationship should be simultaneously made, as was suggested by the Governor in his Message to the General Assembly.

The Water Resources Inventory is subdivided into nine parts: Turtle Creek Investigation; Gazetteer of Streams; Gazetteer of Lakes and Ponds; Precipitation; Water Supply; Water Power; Floods; Navigation, and Culm. These parts will be published separately, and should be available for distribution in the near future.

PYMATUNING RESERVOIR PROJECT.

Under instructions contained in the Act of the General Assembly approved the 14th day of June, 1911, the Water Supply Commission examined into the feasibility of constructing a storage reservoir in Pymatuning Swamp, by the erection of a dam across the Shenango River at the outlet of the swamp in Crawford County, and submitted a detailed report to the Legislature of 1913 stating that the construction of a storage reservoir was feasible.

The act approved the 25th of July, 1913, commonly known as the "Pymatuning Swamp Act," directed the Water Supply Commission to erect a dam at the outlet of Pymatuning Swamp, for the purpose of establishing a reservoir to conserve the water thereof and to regulate the flow of water in the Shenango and Beaver rivers. The act provided that no construction should begin until the entire property, including the reservoir site, was acquired. Section 4 of this act provides that "when the entire cost of said lands and materials, including expenses and the cost of said dam and reservoir, shall have been ascertained and fixed as nearly as may be, the Commission may take possession of said lands or materials in the name of the Commonwealth."

The Commission proceeded to make an estimate of the cost of the project, based on a thorough appraisal of the value of the land and buildings; detailed estimate of the value of timber and the cost of its removal; clearing of the reservoir site; construction of dam and appurtenances, and relocation of railroads and highways.

The conclusions reached in the 1912 report regarding the effect of the reservoir in increasing the low flow of the Shenango River were substantiated by further hydrographic studies. The Act of 18th June, 1915, amended the Pymatuning Swamp Act of 1913, by providing for the payment of the necessary compensation for waivers of damages from owners of lands in the State of Ohio which will be submerged or injured by the construction of said reservoir, and made an appropriation of $1,500,000 for the completion of the project, the appropriation to become available upon the requisition of the Water Supply Commission for the five fiscal years beginning June 1, 1917, at the rate of $300,000 per fiscal year. The bill also contained an item reappropriating the sum of $65,000, being the unexpended balance of the amount appropriated by the General Assembly under the provisions of the Act of 25th July, 1913.

The Governor approved the amendatory bill, including the $65,000 reappropriated, but, because of insufficient State revenue, was compelled to withhold his approval from the item appropriating $1,500,000.

Field and office investigation and hydrographic studies have been continued; dam sites explored; drillings made, and practically all of the properties necessary to be acquired have been surveyed and mapped.

A special report containing the details of the work done by the Commission upon this project will be submitted to the next session of the General Assembly.

POLICY RECOMMENDED FOR ADMINISTRATING THE CONTROL AND USE OF PENNSYLVANIA STREAMS.

The Commission submits in Chapter II a policy for the conservation and control of the inland waters of the State, especially for flood prevention, domestic and industrial water supply, and to a less degree for water power and navigation.

An adequate policy for the control and regulation of the waters of the State cannot be formulated, except in so far as present and probable existing conditions are known and understood. Even then it will not be perfected at once, but in many respects must be a matter of growth, being developed by experience. Yet the State, through the Water Supply Commission, may well undertake a program which will aim at formulating such a policy.

The conditions which are necessary for its development are: A thorough knowledge of the streams of the State, so that the problems of control may be known; general plans for solving those problems; and an orderly legal code, which will make practicable the execution of plans which may be developed and will insure control and supervision over constructions affecting the river systems.

SUCCEEDING CHAPTERS.

Chapter II, recommending a comprehensive policy for administrating the control and use of Pennsylvania streams; Chapter III, recommending the adoption of a comprehensive policy for supervision over the construction and maintenance of dams; Chapter IV, concerning the Pymatuning Reservoir Project, in Crawford County; Chapter V, showing the number of water and water power companies incorporated during the year 1915; Chapter VI, entitled "Flood Warning and Precipitation"; and Chapter VII, giving the details of the work of the Hydrographic Division, are all worthy of careful consideration, especially the chapters recommending comprehensive policies for administrating the control and use of Pennsylvania streams, and for the employment of an adequate engineering staff properly to supervise the construction and maintenance of dams, for the reason that considerations of public welfare require that some such policies be established, in order that water, the one remaining great natural resource over which the State has control, might be conserved and developed for and in the interest of all the people of the Commonwealth.

CHAPTER II.

COMPREHENSIVE POLICY RECOMMENDED FOR ADMINISTRATING THE CONTROL AND USE OF PENNSYLVANIA STREAMS.

The Commission submits the following outline of a policy for the conservation and control of the inland waters of the State, especially for flood prevention, domestic and industrial water supply, and, to a less degree, for water power and navigation.

We have not thought of water as a resource that could fail us to any serious extent; but, as a matter of fact, we are reaching a condition where, unless this source is controlled and conserved, it will not continue fully to serve the needs of the State, and a gradual slackening of development will occur. Industries dependent on water supply will move to other regions. Already, in some instances, as on the Beaver River, further development is checked because of limited water supply; while in other cases repeated floods restrict future growth.

We have no reason whatever to expect any substitute for domestic and industrial water supply. Every indication is that an increase in the use of water will continue indefinitely and at an accelerating rate. Heretofore to a large extent we have made our water supply serve our purposes in the most haphazard manner without being aware of waste, but as we begin to feel the pressure of limited supply, the degree to which we conserve and co-ordinate our assets will materially affect our further development.

In some of the European countries these conditions are being foreseen. For some river systems inventories have been made of all existing water assets, and of all the necessities for control and regulation. Well developed plans have been worked out and put in execution, calling for the co-operation of individuals, corporations and municipalities in securing the benefits of flood prevention, water supply and power development.

An adequate policy for the control and regulation of the waters of the State cannot be formulated, except in so far as present and probable existing conditions are known and understood. Even then it will not be perfected at once, but, in many respects, must be a matter of growth, being developed by experience. Yet the State, through its Water Supply Commission, may well undertake a program which will aim at formulating such a policy.

The conditions which are necessary for the development of such a policy are: first, a thorough knowledge of the streams of the State, so that the problems of control may be known; second, general plans for solving those problems; and third, an orderly legal code, which will make practicable the execution of plans when developed, and will insure control and supervision over constructions affecting the river systems. The principal work necessary in order to outline such a general policy for the State, and to put it into execution, may be summarized as follows:

TOPOGRAPHIC SURVEYS.

Through co-operation with the United States Geological Survey, the topographic map of the State should be completed. Of the neighboring states, Ohio, Maryland and New Jersey are entirely covered, and New York largely covered by such surveys. About one-half of Pennsylvania is covered. The completion of this survey is very necessary as a basis for further engineering investigations.

HYDROGRAPHIC STUDIES.

Stream gaging records and studies of flood conditions should be continued, and increased in scope.

RAINFALL STUDIES.

Steps should be taken to secure a more complete knowledge of rainfall conditions.

GENERAL PLANS.

The Water Supply Commission should secure sufficient information concerning each river system to enable general plans to be worked out for the control and use of the waters of that system. This information should include:

The character and extent of its drainage area;

The conditions of rainfall and run-off;

The extent to which the streams may be called upon in the future to furnish water supply for domestic or industrial use;

The extent to which floods menace life, destroy property, and restrict growth, and the extent to which this menace and damage may be expected to increase in the future;

The possibility and feasibility of water power development;

The possible extent to which the stream might become part of a navigation system.

With this information at hand, tentative general plans should be made for the control, use and development of each stream, to the end that a general policy may be followed without conflict or lack of coördination. This work should result in foreseeing water control problems which may arise; should determine the best methods for solving those problems, and should outline the units in which the work can best be handled.

A stream may require flood control, and at the same time there may be demands upon it for domestic and industrial water supply. Perhaps the channel is now seriously obstructed and encroached upon, aggravating flood conditions. It may be found that reservoirs for domestic water supply and also for industrial water supply are feasible, and that by combining the two functions large economies in cost may be secured. It may be found further that flood control by reservoirs is feasible, but that if reservoir capacity is secured for water supply, flood prevention must be secured by other means, as by channel improvement and the establishment of permanent shore lines. It should be the duty of the Commission in such cases to weigh the comparative needs and values of the available storage capacity, to decide what use should be made of this capacity, and to plan other methods to solve the remaining problems.

Such a course will tend to insure the orderly and systematic development and control of the water resources of the stream, and will tend to prevent future developments from becoming a confusion of conflicting interests. Millions of dollars have been wasted in flood control work in the middle states through the lack of comprehensive plans for development.

FURNISHING GENERAL INFORMATION.

The Water Supply Commission should be a clearing house of general information for the public in reference to problems of public water control,—not in the sense of being consulting engineers, but by outlining policies and by furnishing information which only a public institution can collect.

ADVICE AND DIRECTION.

As water control projects are initiated from time to time in various parts of the State, the Water Supply Commission should furnish advice as to the general methods which may be used in approaching the problems, and, subject to final review by the Public Service Commission, should have regulatory powers over such undertakings. This advice and direction should indicate whether the community or corporation in question can best work out its problems alone, or in cooperation with other communities, and whether a single object such as water supply can best be secured alone, or whether more than one object, such as water supply and flood prevention, or water supply and power development, should be provided for by the same improvement. Such supervision will reduce waste of public and private funds in ill-advised or impracticable projects, and would aim to secure the safest and most beneficial use of the waters of the State.

The plans for water control and utilization on each river system should be developed to such a point that when any community or corporation desires to undertake the construction of works for either flood prevention, water supply, or water power, the following information can be furnished:

With reference to flood control problems:

(a) The extent of the menace;

(b) The most promising methods of control;

(c) Whether the community or company in question can best handle its problem alone, or in co-operation with other communities or interests. This would include the outlining of the territory which ought to be included in the unit for development;

(d) Whether flood control should be undertaken without reference to other problems, or whether it should be combined with water supply or water power;

(e) Whether, in case conditions are not ripe for undertaking a comprehensive improvement, partial, local, or temporary improvement could be secured without interfering with future possibilities;

(f) Whether limitations would be imposed upon the community or corporation in question in order to protect other communities or interests;

(g) How to initiate and to organize public undertakings.

As plans for the improvement would be developed by the engineers employed by the local communities or interests, these engineers would have access to the information in the hands of the Commission, and the completed plans would be examined by the Commission to insure their adequacy for the protection of the public, when measured by State standards.

With reference to water supply or other problems, the same general information would be furnished, differing as the problems are different.

SUPERVISION OF PLANS, CONSTRUCTION AND MAINTENANCE.

Plans for works for the control and utilization of water should be subject to examination and approval by the Commission, to the end that all work done in the State shall be safe, and shall not unnecessarily conflict with other undertakings of like nature. With its knowledge of the underlying conditions the Commission would be able to point out fundamental errors in plans submitted.

The State is justified in assuming direction of such improvements, in the same manner as it controls public service utilities. For instance, the design and construction of dams differs from many other industrial enterprises in that, as both dam sites and water supply are limited, one undertaking tends to make others impossible, and so developments of this character have many of the characteristics of a monopoly. The building of a dam to furnish water for manufacturing processes may entirely prevent a similar development for domestic water supply or for flood prevention. Such conflicts will occur repeatedly unless there exists some superior authority which has the information at hand to determine and the authority to enforce the demands of public interest and safety in the development of water resources. In a similar manner, the building of bridges, the establishment of shore lines and the filling or obstruction of streams should be in accordance with carefully determined public policy.

At least in the construction and maintenance of dams and other structures where the safety of the public is an issue, the Commission also should supervise construction to the point of securing public safety, and later should insure adequate maintenance.

In the past by far the larger number of dams constructed have been small. Failure usually has meant no more than local disaster. Only ordinary ability usually has been required to insure moderately safe construction.

With the increase of population and the development of industrial interests, great changes in dam construction are taking place. The development of the State demands that control and conservation of water be farsighted and carried out on a large scale. This means the construction of dams many times as large as those usually built in the past. The technical skill required in design and construction is far greater. The interest of the public becomes paramount over private interests and over considerations of private economy. This interest demands rigid supervision over location, design and construction, and in many cases continued supervision after construction to insure adequate maintenance.

Failure to provide supervision of design and construction in the course of time will mean occasional great disasters through dam failures. Private companies or municipalities, striving to economize unduly, or unaware of the problems involved, from time to time will build structures without careful design and without adequate factors of safety, unless some authority is in a position to hold them to safe standards.

A single dam failure may cause a greater loss than the total cost for a generation of adequate supervision. Moreover, if provision for supervision is a matter of careful forethought and a well digested policy, safety can be assured without unreasonable restrictions. If such provisions are neglected until a disaster occurs, in the reaction which follows unnecessarily drastic legislative limitations may be made, which for many years may seriously check the necessary progress of water control.

SUPERVISION OF OBSTRUCTIONS.

The Commission should continue supervision and control of obstructions to stream channels, in order to protect the public and to prevent constructions which will complicate the problems of flood prevention.

DIVISION OF STATE INTO DISTRICTS.

To some extent it will be desirable to indicate what are the natural units into which the state and the various river systems should be divided for purposes of flood prevention, water supply, or for other purposes in relation to water control.

The State of Pennsylvania, with its well-defined watersheds, lends itself naturally to subdivision into natural units for improvements. Some of the chief problems will be to decide in each case whether a single municipality can protect itself and otherwise serve its interests best by working alone, or by co-operation with others.

WATER CONTROL CODE.

A legal code should be outlined which, in addition to continuing and supplementing wherever necessary the present powers of the Water Supply Commission, will provide methods for legal co-operation and organization for constructing and maintaining water control works.

If the work of water control for flood prevention and for domestic and industrial water supply were to be confined to single municipalities, and if the work in each case were to be of common general benefit to the community, then the existing state laws might be reasonably satisfactory. But since, in manv cases, it will be necessary for several communities on a watershed to unite for flood control or for other purposes, co-operation is necessary. In many cases the work will be of vital necessity to one municipality, but only a matter of desirable convenience to another, so that payment for the work by a flat rate tax on all property affected may be very unjust. To endeavor to finance improvements by such flat rate taxes may frequently prevent improvements altogether.

The methods employed by the various States of this country, and by the countries of Europe, for securing effective co-operation between persons, corporations and municipalities in water control improvements, show that wherever the problem has been faced, substantially the same solution has been reached.

The following essentials of water control programs find expression in nearly all American and European codes, though with many variations of detail:

1. The improvement is not demanded by the State, unless neces-

sary to correct some abuse, but is initiated, by petition or otherwise, in the community most directly concerned.

2. A court, commission, or other public authority, determines whether the undertaking is of public value, and whether it should be carried out.

3. If the improvement is undertaken, the territory involved is set apart, by formal action of court or commission, and exists so far as is necessary for carrying out the purposes of the improvement, as a municipal corporation or a governmental subdivision, commonly known as a "District," with appropriate rights, duties and responsibilities, and usually with its own officers, which are very seldom elective in the usual sense of the word.

4. The improvement is paid for by special assessments, each piece of property paying an amount proportional to the benefits received. Where city or village property or interests are affected, the city or village is treated as a person or corporation owning property and dealt with just as any other property owner. In only a few exceptional cases are improvements of this sort paid for by flat rate taxes, and these exceptions prove the wisdom of the general rule.

It is not certain to what extent this principle of special assessments can be applied in Pennsylvania. If the State does not possess the power to make such provisions, its progress in water control will be seriously handicapped until that limitation is removed.

A fundamental necessity in any sound policy for water control is this,—that the people who get the benefit shall pay the costs. Whenever work of only local benefit is paid for by State or National funds, the incentive to economy is removed, and the way is open to the most flagrant violations of sound principles of public business.

If the State, from its general revenues, pays for works of only local interest, the demand for such expenditures will be unlimited, or will be limited only by the ability of any community to secure favorable action by the Legislature. Favorable action on some very necessary project in one part of the State may be dependent upon similar patronage being distributed in other localities where there is little or no necessity for the expenditure. This is not a reflection on any given locality, but indicates an inherent defect in the system, which will tend to work out in the same unfavorable manner in any community or in any State. Moreover, such a policy actually retards development, for the people of a community commonly will not help themselves so long as there is even a remote possibility of their getting someone else to pay the cost.

The function of the State should be educational, advisory and regulatory. Many communities cannot determine or do not appreciate their own needs. Frequently it is impossible for them to maintain suitable engineering organizations or to spend the time and money in collecting information necessary to see a situation in its broader aspects. They tend to view their problems locally, and to work them out without regard to the interests of other communities. The proper work of the State is to furnish to each community such information and direction as commonly only the State can give; to make clear to the community what are its needs and duties in the matter of water control, how it can meet them, and how they are related to other problems; and to indicate what are the natural units in which to work. As this service of education, regulation and advice would be furnished alike to all communities, it is a State function, to be paid for by the State.

It may not be improper for the State to give financial encouragement also in water control works, provided that such assistance conforms to a definite policy and applies alike to all communities. One of our States commonly purchases the bonds of those water control projects which conform in every way to the standards set by the State as to adequacy of plan and execution. A State may underwrite the bonds of such public water control improvements as have conformed fully to its requirements. In several European countries there are governmental policies of paying a part of the total cost of any local public improvement for water control which will comply in all respects with government requirements. By such methods the State may, if it chooses, stimulate well planned water control undertakings without destroying the spirit of self-help, and without instituting a policy of paying for local improvements by special appropriation from general State funds.

CO-ORDINATION OF PUBLIC AGENCIES.

There is some difficulty in the way of one department of government acting as advocate and adviser, and also at the same time as a judicial body to pass upon the merits of its own position. For this reason it probably would be advisable, in case of any difference of opinion between the Water Supply Commission and any municipality or corporation, to have a court of appeal from the decisions of the Commission. Also in the organization of any improvement district for flood prevention or water supply, one step in such organization should be a hearing and decision before a judicial body. It would seem that the Public Service Commission could properly exercise these judicial functions. The Water Supply Commission also should be expert adviser and source of information, within its field, for the Public Service Commission.

WATER POWER.

There is a great divergence of opinion among engineers as to the part water power is to take in our future industrial development. A sound governmental policy for the present would seem to be to give it a fair field and no favors, and to allow its development to reach such a stage as is possible in free competition with other sources of power. Possible sources of power are so unlimited, and the directions which power development may take are so uncertain, as to make unwise the expenditure of large sums, or large sacrifice of present interests, in order to save water power which might be used profitably by a future generation.

HOW IT WILL WORK OUT.

A practical example of how such a policy as here outlined will work out, where large areas including many communities demand improvement by a single plan, is a Conservancy District organized under the laws of the State of Ohio, primarily for the purpose of constructing and maintaining flood prevention works in the valley of an important river in that State.

First, a general survey of the watershed was made, at a cost of about $50,000. This indicated that the river should be considered as a unit in its development. A district was, therefore, organized uniting nine cities and parts of as many counties into a "Conservancy District," a corporation having the powers and functions of a governmental subdivision, for purposes of water control. This district is now working out its problem of flood control as a unit, the property owners and municipalities sharing the expense of more than $20,000,000, in proportion to the benefits received. Many of the communities in this district, if left to work alone, would have found relief financially impossible.

THE COST OF A GENERAL SURVEY OF THE RIVER SYSTEMS OF THE STATE.

The general survey of flood problems on the Miami River, up to the point of determining a general plan of improvement on the main river, cost about $50,000, or $15 per square mile of drainage area. If protection on the branch streams had been considered, the cost would have been increased to perhaps $20 per square mile of drainage area, in addition to the work of the United States Geological Survey, which was already done. In developing complete plans for the improvement, several times as much money was spent, but this is not work which would be required of the Water Supply Commission.

The amount of expenditure for general plans is comparable with that on several other large undertakings of a similar nature. At this rate, to cover the entire State of Pennsylvania, developing the possibilities for flood control, water supply and water power, on each river system in the State, would cost about $800,000. When we recall that in a single water power development in a neighboring State, an expenditure of $6,000,000 was made and the project then completely abandoned, to be replaced by works constructed at another site, because a general view of the situation indicated that great possibilities for economy had been overlooked, we see how great loss may result from the lack of such comprehensive information.

A State-wide survey such as that outlined above, if carried on without interruption, should be completed in five years or less.

CHAPTER III.

SUPERVISION OF DAMS IN PENNSYLVANIA.

Pennsylvania, warned by the disastrous failure of the dam at Austin, Pa., in September 1911, and by other disastrous failures of dams in different parts of the country, wisely enacted a law in 1913 providing for supervisory jurisdiction over the design, erection and maintenance of the dams in the Commonwealth, the supervisory power being conferred upon the Water Supply Commission of Pennsylvania.

The subjects to be especially considered are the policy which should be pursued by a commission in executing such a law and the extent to which the State should provide the means for carrying out such policy.

Before discussing details, it is well to consider the broader features, as to the extent to which dams will be constructed in the future and what the policy of the State should be in regard to encouraging or discouraging the construction of dams.

The population of Pennsylvania is now about eight millions, and at the present rate of growth is likely to be doubled in the next 30 to 40 years. To meet the needs of the present population, it has been necessary to construct many dams and reservoirs to provide water supplies for domestic, industrial and railroad uses; also for creating power and for other purposes. The dams built in recent years have as a rule been much higher and impound much more water than those formerly built. The need for impounding large quantities of water is growing more pressing every day, and the next eight million people in the State will require much more impounded water than the eight million people now in it, for reasons which will be understood readily.

The provision of an adequate municipal water supply furnishes the most important reason for the construction of dams and the impounding of waters. The history of such water supplies shows that many towns of moderate size have first obtained their water supply mainly from the natural flow of small streams, supplemented during the dry season by water drawn from reservoirs of moderate size built upon them. With the growth of the towns new sources have been sought, upon which similar dams have been built.

In time, however, the available sources which will furnish pure water are all utilized, and it becomes necessary in order to obtain more pure water to utilize the flood waters of the streams by building reservoirs which are large enough to conserve such waters for use during the dry season. This has led to the building of larger and larger reservoirs to utilize more and more of such flood waters. It is a method of furnishing an adequate water supply which cannot properly be discouraged, as the alternative would be the use of water from larger streams which are polluted or the bringing of pure water from distant sources at an excessive cost.

Industrial establishments, like the great steel works of Pennsylvania, require vast quantities of water in connection with their blast furnaces and other operations. Where they are not located beside a great river, the necessity arises for impounding large quantities of flood waters for these uses. To discourage the building of dams for this purpose would injuriously affect the State by interfering with important industries.

The Pennsylvania Railroad with its great traffic has found it necessary to build important dams and reservoirs in order to obtain a sufficient quantity of water suitable for use in its locomotives.

The available water power which may be furnished by the rivers of the State by concentrating the fall at dams is of value in that it utilizes a never ending source of power, thus deferring the time when coal mines will become exhausted. Dams and reservoirs for power purposes should, therefore, be encouraged if they are to be built in such a manner as not to menace the people living below them.

In addition to the direct benefit obtainable from reservoirs for the immediate purposes for which they are created, they have an important bearing on the flow of the streams below where the water is turned into them, in that they augment the low water flow of the streams, making them more sanitary in summer, and retain waters during the flood seasons, diminishing the flood damage to congested populations along the streams below them.

The tendency of the present time in regard to the construction of high dams for impounding large quantities of water in reservoirs may be emphasized by presenting a specific example.

The City of Johnstown, Pa., prior to 1908, was supplied with water from seven small streams intercepted near their headwaters, so as to include only the unpolluted portions and those which would furnish water to large portions of the city by gravity. An inlet was also provided from a larger stream, less free than the others from pollution by population and mine waste. On the smaller streams there were dams of varying but not great heights, creating reservoirs of moderate size. When the existing sources became inadequate, additional unpolluted sources were not available, and the best way of obtaining the requisite supply of pure water was found to be by building high dams to impound large quantities of flood water which would otherwise have run to waste in the spring. One dam retaining water to a depth of 100 feet was, therefore, constructed between 1908 and 1913, and another dam of the same height has been begun.

The vast quantities of water required by the great steel works located in the same city, in connection with blast furnaces and for other industrial uses, could not be obtained from the natural flow of the streams supplemented by one storage reservoir of medium size, so that it became necessary, in order to obtain an adequate supply of water of suitable quality, to build a dam across a stream and create a great impounding reservoir. The depth of water above this dam, which was completed in 1913, is 100 feet.

The foregoing discussion and example show that the tendency of the times is toward the construction of dams of constantly increasing dimensions, impounding constantly increasing quantities of water, and that this tendency is generally the result of the increasing need of conserving flood flows of the streams in larger and larger quantities for purposes which are necessary to the health and welfare of the people of the Commonwealth, so that the building of dams where necessary for these purposes should not be discouraged.

This leads to the conclusion, which should be stated most emphatically, that the moment the State permits the construction of dams impounding vast quantities of water, which through failure may cause such terrible destruction as has been caused at Austin and Johnstown, Pa., and in southern California, it assumes a serious moral obligation to require that the dams be so built and maintained as to prevent them from being a menace to the lives and property of the people living in the valleys below them.

In order to fulfill this obligation of the State, two things are necessary:

(a) The enactment of a law creating an executive body with broad powers of inspection, supervision and correction.

(b) The providing of an adequate and competent staff to enable the executive body to perform its duties in a thorough and efficient manner.

The law of 1913 gives the Water Supply Commission the required broad powers of inspection, supervision and correction, and no change in the law seems to be necessary at this time, but as it places under the jurisdiction of the Commission structures which may constitute a menace to thousands of people and to millions of dollars worth of property, it is of the utmost importance that it should be executed in a thoroughly effective way.

The staff which can be provided with the present appropriations is inadequate to enable the Commission to perform its duties in as thorough and efficient a manner as is required. The staff should be adequate and competent for:

Investigating and reporting on plans submitted for new dams and for inspecting such dams during their construction.

Examining and reporting upon all existing dams which by their failure may cause loss of life or property and recommending changes which are required to insure the safety of such dams.

Inspecting changes in dams as they are made.

Examining from time to time such dams as require examination to insure that they are maintained in safe condition.

It is especially desirable that the engineering staff of the Commission should as far as possible be a permanent body, because it is not likely that vacancies can be filled with engineers fully qualified by study and experience to pass upon the difficult problems of dam design and construction.

A study of engineering text-books does not by any means furnish all of the information required for the design of dams, and this is particularly true of the design of masonry dams where the text-books of the past have failed to take into account factors seriously affecting the safety of such dams.

While the Commission may of necessity have to conduct to some extent a training school for the younger engineers whom it employs on this work, it should endeavor to make employment in the dam division sufficiently attractive to cause engineers to make it their life work. By adopting this policy and retaining competent trained engineers, mistakes may be avoided. The Commission cannot expect to retain competent engineers in this division if they are not paid salaries commensurate with the duties performed and responsibilities imposed. The State should supply the funds necessary to permit this to be done.

It is important that the staff should not be so overloaded with current work that its members cannot investigate dam failures and make such other investigations and researches as are necessary for obtaining a full knowledge of the many factors which make for the stability or instability of dams.

Inadequate appropriations for this work are false economy, because the failure of a large dam impounding vast quantities of water, such as are retained by some modern dams, would undoubtedly destroy property representing more value than the amount of expense necessary to maintain an adequate staff of competent engineers for a quarter of a century, as for example:

The Johnstown flood in 1889 caused a loss of life of 2,142 and a loss of property estimated at between $3,000,000 and $4,000,000. At that time the population of Johnstown was about one-third of the present population, and the quantity of water stored in the reservoir which failed was only about one-third of that in an existing reservoir above the city supplying water to the steel works.

The Commission and its staff should require that every dam built in the future should be built to withstand not only the ordinary pressure of water against it but every stress to which it may possibly be subjected by extreme floods and other causes. Where the failure of a dam may menace life or cause serious damage to property, it should be built in this safe way, and to insure this the Commission should have adequate engineering advice.

Just how far the Commission should go in inspecting new dams or changes in existing dams during their construction or reconstruction will depend upon circumstances. The inspection should be sufficient so that the Commission can make sure that there will be no unknown defect which may lead to the destruction of the dam. In some cases this will require constant inspection by a qualified member of the staff; in other cases, where it is clear that the builders of the dams are pursuing a safe course and providing ample inspection, only an occasional visit to the work may be required. The general rule is to have a sufficient inspection of each structure by a qualified inspector to assure the Commission that the structure will be safe.

A study of dam failures shows that all types of dams may fail if improperly designed and constructed.

A comparatively large number of failures of solid straight masonry dams have occurred by their having been pushed downstream by water pressure, although this may have resulted in some cases from their having started to overturn. Dams which have failed in this way have been those having a light cross section and consequently too little weight to resist the water pressure. The result shows that this class of dams should be built of heavier cross section and greater weight, or another type of dam substituted.

Dams built of earth necessarily contain a much larger quantity of material and weigh much more than masonry dams, so that they are never pushed bodily downstream by the water. The failure of a dam of this kind in most cases results from the inadequacy of the spillway to discharge the water of a great flood, so that the dam is overtopped and the earth washed away, one part after another, by the overflowing water. To prevent failures of this kind it is obviously necessary to provide a spillway sufficiently ample to discharge the greatest floods without overtopping the dam.

It is feasible to build dams of various types which will not be pushed downstream by the water pressure or destroyed by overtopping, but in order to make sure that such dams will be built effective supervision is necessary.

The fact that a dam has stood for many years does not necessarily mean that it is safe, because much greater floods may occur than those which have occurred during its existence. An example of this has been furnished by the disastrous failure of the Lower Otay Dam in southern California. The dam was built nearly 20 years ago, but had a spillway incapable of discharging the waters of the recent great flood, so that the dam was overtopped and destroyed with results disastrous to life and property.

To summarize the foregoing statements:

Dams for impounding water are necessary at the present time for the health and welfare of the people, and will be more necessary in the future, so that the building of safe dams should be encouraged. Unsafe dams may be a serious menace to the people and property in the valley below them, and the building or maintenance of such dams should be prevented; this can be accomplished only by effective State supervision. In order that supervision may be effective, a State commission having the matter in charge must have an adequate staff skilled in this class of work, and such a staff can be employed and retained only when sufficient funds are available for the purpose.

EXAMINATION OF DAMS,—1915.

The Commission has continued its supervision over the design and construction of new dams and has practically completed the examination of existing dams. Since the beginning of this work in 1911 it has approved the plans and supervised the construction of 118 proposed dams and the additions or repairs to 51 existing dams, while 641 existing dams were examined to determine their condition and degree of stability. Repair work and strengthening was ordered in connection with 193 dams, thus indicating that 30 per cent of those examined were found deficient.

During 1915 permits were issued for the construction of 43 new dams, and for changes or alterations to 23 existing dams. Construction work has been in progress upon 49 of these projects, and upon 32 others for which permits were issued prior to 1915. Two hundred and six field examinations were made for the purpose of insuring adherence to the approved plans, specifications and conditions contained in the permits, and to pass upon the character and placing of materials.

Examinations were made of 348 existing dams, and it was found necessary to require the repair or strengthening of 121, in order that they might be placed in safe condition. By the end of the year repairs had been completed on 35 dams, work was in progress on 5 others, and plans had been approved for 27 more. It has been the experience of the Commission that owners of dams are usually ready and willing to comply with orders directing repair and strengthening, when the necessity for such steps has been brought to their attention.

The field examinations made by engineers in the Dam Division may be classified as follows:

CLASSIFICATION OF FIELD EXAMINATIONS OF DAMS DURING 1915.

Examinations of the sites of proposed dams,	48
Examinations of existing dams,	348
Supervision of construction work on new dams,	158
Supervision of repair work on existing dams,	72
Total,	626

The dams thus far examined are the most important ones, whose failure might result in loss of life or destruction of property; those remaining unexamined are either comparatively unimportant or those of which the Commission has no knowledge. In this connection it might be well to call attention to the fact that there are possibly a number of small dams still unexamined, whose failure might cause considerable damage, particularly if there are bridges over the streams or buildings near them immediately downstream, and while the Commission desires to examine such structures, it is impossible to do so in many cases until the fact of their existence has been brought to its attention.

MAINTENANCE.

The necessity for careful maintenance cannot be too strongly emphasized. Many a dam has been left by its builders in good condition, but has been neglected afterwards by the owners and allowed to deteriorate. The changes taking place in the structure may be so gradual as not to be apparent to a person seeing it at frequent intervals, or one who does not realize the necessity for proper maintenance. Those experienced in dam construction know the points of weakness which are most likely to develop, are on watch for them, and, therefore, much more likely to observe them than untrained men. The larger and more important dams in the State will accordingly be examined from time to time, to see that they are maintained in a proper and safe condition, and not allowed to deteriorate and become a menace to life or property.

Many earthen dams are not well compacted when built, and as a result there is apt to be considerable settlement; while this will tend to improve the earth work itself, it will necessarily diminish the difference in elevation between the normal flow line and the top of the dam, thus decreasing the flood capacity of the spillway, which is too often insufficient as originally designed. Furthermore, it frequently happens that dams of this character are not well protected from wave action, and the erosion which takes place may assume dangerous proportions. The downstream slopes are frequently found to be eroded, due to the lack of adequate protection from wash. These defects should be carefully noted and repaired as soon as observed, adding material to the top of the dam so as to maintain the original crest elevation, and protecting the slopes in some manner to prevent wash and erosion. On the upstream slope this would require a substantial paving or riprap, while on the downstream slope riprap may be used, or sod, or a mat of creeping vines. Brush and trees should not be allowed to grow on a dam, as the roots may penetrate through to the water, and the swaying of the trees tends to loosen the material of which the structure is built.

If wood enters into the construction of a dam, frequent examinations should be made to determine its condition, as a structure of this type is apt to deteriorate more rapidly than those of earth or masonry.

Valves and sluice gates should be operated at regular intervals, to determine whether or not they are in working condition, so that there may be no doubt as to their availability for use when occasion demands.

SPILLWAYS.

The Commission cannot condemn too strongly a practice which the examination of existing dams has shown to be all too prevalent throughout the State, namely, that of gaining increased head or greater storage by installing permanent flashboards, or by raising the crests of spillways, without raising and strengthening other parts of the structures in a corresponding manner. This practice is reprehensible and dangerous, and is usually resorted to by owners who are ignorant of the principles underlying dam design without consulting experienced engineers, and without realizing the danger involved. The spillway without the flashboards is often too small to discharge such floods as are liable to occur, and the presence of these obstructions renders the dam more liable to destruction by overtopping. Another danger is that excessive stresses may be created in a masonry spillway or dam which were not anticipated or provided for when the structure was designed, and which, therefore, may cause its failure during flood. If increased head or storage is desirable and flashboards are to be used for this purpose, they should be automatic in action, or of a temporary type which will fail when the water reaches a predetermined height, and these types should be used only after approval by the Water Supply Commission.

LEAKAGE.

Considerable leakage has been found at a number of dams examined; this in itself is not necessarily an indication of danger, but it does tend to defeat one of the principal reasons for building dams, viz: conserving the supply of water for use during periods when the stream ordinarily would not be able to supply the demand. Leakage from a reservoir frequently exceeds the stream flow into it, with the result that the reservoir is depleted at a time when the need for the water is greatest. In most cases owners do not measure the leakage, and, therefore, do not realize its amount and importance.

Leakage may by its character indicate that the safety of a dam is threatened; thus, if leakage which is ordinarily clear suddenly becomes muddy and increases in volume, the water in the reservoir should be drawn down and a thorough investigation made, as this is an indication of danger. Leakage which is found to be increasing even slightly in volume, as shown by measurements extending over a considerable period of time, should be looked upon with suspicion and investigated to determine whether or not it might develop to the extent of threatening the safety of the dam, and, if so, eliminated. The Commission has directed that the leakage found at a number of dams be kept under constant observation and records of measurements made at frequent intervals filed with this office.

PUBLICATIONS.

A pamphlet has been issued containing the rules and practice before the Commission in making applications for permits for the construction of new dams or repairs to existing dams, together with a description of the nature of the engineering data required and a set of specimen plans. Another pamphlet has been published describing and illustrating a simple weir suitable for measuring leakage, together with forms upon which such measurements may be submitted to this office. A semi-monthly record of progress on construction is required upon forms furnished for the purpose.

ROCK RUN DAM—CITY OF COATESVILLE.

The dam being built on Rock Run by the City of Coatesville, Chester County, is one of the most important structures started in 1915, on account of its size and location and the determined opposition to its construction on the part of certain citizens of the city. The main arguments advanced by opponents of the dam were that it would menace the safety of the community, and that a satisfactory water supply could be secured from another source by the construction of a dam so situated that failure would not jeopardize life or property. There was no unfavorable criticism of the type of dam, of the details of its design, nor of the suitability of the site selected insofar as fitness of foundation and other structural details were concerned. A secondary argument advanced was that the water supply to the mills along Brandywine Creek, of which Rock Run is a tributary 2.5 miles above the city, would be seriously interfered with if water were taken from Rock Run for domestic purposes. The matter has been given wide publicity, and in order that the position taken by the Commission may be understood, a brief description of the dam and of the action taken thereon is here given.

Application was received from the Borough of Coatesville on December 27, 1913, for a permit to construct a reinforced concrete dam on Rock Run, in accordance with plans and specifications filed with and forming a part of the application. The plans provided for a dam 583 feet long and 42 feet high, consisting of a hollow reinforced concrete section 393 feet long, with earth embankments 125 feet and 65 feet long at the north and south ends, respectively; the central portion to be of buttress and deck type, with buttresses spaced 15 feet center to center, and the deck inclined at an angle of 40 degrees to the horizontal, with a reinforced concrete cut-off at the upstream toe continued through the earth embankments, all to be founded on rock; the earth embankments to be 18 feet wide on top, with an upstream slope of 1 vertical on 2 horizontal, protected with riprap, and a downstream slope of 1 vertical on 2½ horizontal, to be seeded on completion.

The application was approved and a permit issued on May 1, 1914, as follows:

"Borough of Coatesville,
Coatesville, Penn'a.

Dear Sirs: The Water Supply Commission of Pennsylvania directs me to advise you that at its meeting held April 30, 1914, the application of the Borough of Coatesville, Penn'a., filed December 27, 1913, for the construction of a hollow reinforced concrete dam on Rock Run, a tributary of Brandywine Creek, in Chester County, Penn'a., was approved, and the consent of the Commission is hereby given to the construction of said dam in accordance with the maps, plans, profiles and specifications accompanying said application, provided the construction of said dam is not begun until it is approved and a final permit has been issued by the State Department of Health, and provided the following conditions are complied with:

"1. That the plans and specifications submitted shall be considered as showing the general features of the structure, subject to amendment, revision and correction as to details, at the direction of the Water Supply Commission of Pennsylvania; and said general plans shall be supplemented by detailed working drawings and revised specifications, which shall be submitted to and approved by the Commission before work is begun in accordance with them. Subsequent to such submission and approval no modifications shall be made except with the written consent of the Water Supply Commission of Pennsylvania;

"2. That prior to the placing of any concrete or masonry, the position and character of the rock across the valley shall be determined by excavation for the cut-off wall, or by test pits, or, if necessary, by both methods combined. The exposed rock shall be tested by drill holes, to determine its character and thickness;

"3. That the buttresses shall rest upon and the cut-off wall extend into a properly prepared rock foundation, which shall be inspected and approved by the Commission, or its Engineer, before any concrete is placed thereon;

"4. That all buttresses shall be suitably stepped into the rock foundation, so as to increase the resistance to sliding, and all buttress field joints shall be not less than 9 inches deep;

"5. That the buttresses and deck slabs shall be built in lifts not to exceed 6 feet in vertical height, except where their thickness is 18 inches or greater, in which case 12-foot lifts may be used;

"6. That all steel reinforcement shall be designed and placed so as to have a protective coating of concrete at least 2 inches thick between the center of the steel bars and the nearest concrete surface;

"7. That the earth embankment shall be built in layers not to exceed 12 inches in thickness before compacting, and adjacent to the core and end walls not over 6 inches in thickness. The embankment shall be carried up simultaneously on both sides of the core wall and thoroughly rolled;

"8. That the spillway shall be constructed so as to discharge 1,250 cubic feet per second, with a depth of 2 feet of water over the crest thereof;

"9. That a skilled resident engineer, assisted by competent inspectors, shall represent the Borough of Coatesville on the ground constantly during construction, to interpret and enforce the plans and specifications, to require faithful performance of the work, and to pass upon the character and placing of materials;

"10. That the construction of the dam and the character and placing of materials shall at all times be subject to inspection and approval by the Water Supply Commission of Pennsylvania, or its Engineer.

Very truly yours,
(Sig.) T. J. LYNCH,
Secretary."

Work upon the dam was delayed by injunction proceedings brought in the Court of Chester County, and on July 3, 1915, a petition was received from owners of land and manufacturing plants in the borough, requesting that the permit granted be temporarily suspended until a hearing could be had before the Commission for the purpose of showing that "in the judgment of your petitioners, the proposed dam, if constructed, would be a menace to the properties of your petitioners and to the lives of the people of said borough, and if a break should occur therein a vast amount of property will be destroyed and lives imperiled."

A hearing was held on August 24, 1915, at which time arguments were heard for and against suspension and revocation of the permit, and on September 1st the following resolution was unanimously adopted by the Commission:

"Whereas, At a public hearing granted by the Water Supply Commission of Pennsylvania upon the application of certain citizens of Coatesville, and held at the State Capitol, in Harrisburg, on Tuesday, August 24, 1915, at 2:30 p. m., a petition, signed by a number of residents of Coatesville, praying for the suspension of the permit granted by the Water Supply Commission of Pennsylvania to the Borough of Coatesville for the erection of a dam on Rock Run, was presented, and the petitioners were represented personally by counsel, expert engineers, prominent mill operators and other citizens; and the municipal authorities of Coatesville, in opposition to the granting of the prayer in the said petition, were also represented by counsel, expert engineers, and members of the Borough Council; and

"Whereas, After an extended discussion on the part of those representing the petitioners, it was agreed by their expert engineer, Major Casius C. Gillette, that the foundation called for in the specifications is a good foundation, and that the contemplated dam is a most excellent design of dam (see Maj. Gillette's testimony, page 16); that a first class and safe dam can be constructed at the location proposed, and that the only thing that he could think of that would destroy it is dynamite, not even an earthquake, unless the fissure went through the dam (see Maj. Gillette's testimony, page 18); and that he would not put the menace of this dam at all in comparison with the menace of typhoid fever (see Maj. Gillette's testimony, page 21); also Mr. Hatton, another expert engineer on behalf of the petitioners, that he could not improve upon this proposed dam (see Mr. Hatton's testimony, page 26); and

"Whereas, Mr. Worth, a prominent mill operator, appearing in behalf of the petitioners, testified that he was in favor of a good water supply for Coatesville, and that the time has come that they should have a new water supply, and that he will put up as much money as they want to make a change from the proposed Rock Run supply to a supply from Buck Run (see testimony of Mr. Worth, pages 35, 36 and 37); and

"Whereas, It was represented by Mr. Harlan that the great majority of the voters of Coatesville were in favor of a change from the Rock Run supply to the Buck Run supply (see Mr. Harlan's testimony, page 4); that there is no question but that Coatesville must have a new water supply and must have it soon (see Mr. Harlan's testimony, page 5); and by Mr. McKeehan, in his letter addressed to the Water Supply Commission, dated August 27, 1915, that all conditions incident to the change from Rock Run to Buck Run can be met without any material delay in securing a proper water supply for Coatesville; and

"Whereas, On the contrary, it is alleged by the municipal authorities of the Borough of Coatesville that they have proceeded in an orderly way to carry out the duties imposed upon them by law and have had plans and specifications prepared by the most competent engineers obtainable for the dam on Rock Run which will be of the most improved type, of safe construction, and will not constitute a menace to the people of Coatesville, and have issued and negotiated a loan of one hundred and eighty-five thousand ($185,000) dollars for the purpose of securing a water supply from Rock Run; and that the money so obtained can be used for no other purpose; and that contracts have been let for the construction of this dam and water works which cannot be vitiated without the possible mulcting of the Borough for large damages; and that there is no lawful way by which the project could be at this time transferred to any other supply without at least entailing long delays and probably indefinitely postponing the securing of any other water supply; and

"Whereas, It is further insisted by Mr. Holding, Attorney for Councils, that the petition in this case does not represent the wishes of the majority of the qualified voters of Coatesville, and that the only orderly and legal way in which such a matter could be determined is by ballot; and

"Whereas, In the year 1912 the Borough of Coatesville suffered a serious epidemic of typhoid fever which was found to be water borne, three hundred and twelve (312) cases having developed with thirty-four (34) deaths, either within or in the vicinity of the borough; and

"Whereas, From the first of January 1913 up to the first of July of the present year, notwithstanding the temporary efforts at filtration and treatment of the present water supply, the citizens of Coatesville have suffered almost four times as many cases of typhoid fever in proportion to their population as the balance of the state, and more than three times as many cases proportionally as have occurred in the thirty cities of the third class in the state, there having been during this period one hundred and twenty-five (125) cases reported from Coatesville, which for a population of 12,500 would make a case rate of 10 per 1,000 against 2.7 per 1,000 for the entire state, and 3.3 for the cities of the third class for the same period;

"Therefore, After consideration of the evidence laid before the Commission, the legal questions involved and the facts shown by the vital statistics of the state.

"Be It Resolved, That if the petitioners, mill operators, interested citizens and borough authorities will submit to this Commission plans and specifications for the erection of a dam on Buck Run, and will at the same time submit to the Commissioner of Health plans and specifications for a water works system including filtration works, having Buck Run for its source of supply, and will, in connection with such plans and specifications, submit evidence to show that all parties in interest, property owners, owners of riparian rights, and contractors, associated or connected with the Rock Run proposition are satisfied, and that all rights incidental to the adoption of the Buck Run supply are or can be secured, and shall also show the entire cost of the construction of such water works system and that the money therefor is ready and available, and shall show by a vote of the qualified electors of the Borough of Coatesville that the application of the funds now in the hands of the Borough Council for the Rock Run project to the construction of a dam and a water works system on Buck Run is approved; and further, that the Water Supply Commission be furnished with a guarantee that the dam and water works system having Buck Run as a base of its supply can be begun and completed without any further delay, and that the Borough of Coatesville can in such way be furnished with a supply of pure water at an early date, the Water Supply Commission will thereupon consider the approval of an application for a dam on Buck Run, but this Commission cannot under the laws of the Commonwealth revoke or suspend the permit it has already given for Rock Run dam. This Commission, having in mind the agreement of all parties that a new water supply for the Borough of Coatesville at as early a date as possible is a public necessity, and having in mind the history of the epidemic of 1912 and the undue prevalence of typhoid fever thereafter, and having in mind the delays ordinarily incidental to legal proceedings in such cases, and having in mind the concensus of opinion that the danger incidental to the erection of the Rock Run dam is not to be compared with the present menace of typhoid fever, cannot take any action which would tend to further delay the securing of a pure water supply for Coatesville Borough."

On October 28, 1915, the Commission approved revised plans and specifications required under the conditions contained in the permit of May 1, 1914, and shortly thereafter work was begun upon the dam. The Commission has considered it advisable to have a representative constantly on the ground to inspect and approve portions of the foundation as prepared, and to pass upon the materials used and the methods employed in construction.

Table No. 1 indicates the work done each year since the Commission has exercised jurisdiction over dams.

TABLE NO. 1.

Number of Permits Issued for the Construction and Repair of Dams, Progress Examinations during Construction, and Examinations of Existing Dams.

	1911	1912	1913	1914	1915	Total.
Permits for new dams,	4	8	19	46	43	120
Permits for modifications or repairs of existing dams,	0	1	5	22	23	51
Progress examinations during construction,	0	28	70	186	278	562
Examinations of existing dams,	5	23	33	232	348	641

CHAPTER IV.

PYMATUNING RESERVOIR PROJECT.

INTRODUCTION.

Under the instructions contained in the Act of the General Assembly approved June 14, 1911, the Water Supply Commission examined into the feasibility of constructing a storage reservoir in Pymatuning Swamp by the erection of a dam across the Shenango River at the outlet of the swamp in Crawford County. As Pymatuning Swamp had been the subject of considerable legislation, principally with relation to the drainage thereof, the investigations of the Commission considered this feature in connection with the examination of the site for a storage reservoir with the object of determining the plan which would result in the greatest good for the greatest number.

On December 31, 1912, the Commission submitted a detailed report to the General Assembly of 1913, stating that after careful investigation it had been determined that the construction of a storage reservoir was feasible.

The Commission was authorized and directed to construct a storage reservoir in Pymatuning Swamp by an Act of the Legislature approved July 25, 1913. The Act of 1913 appropriated $100,000 with which to start this work, but this sum was insufficient to permit acquiring flowage rights or property or to begin construction. The act also provided that construction should not begin until the entire property included in the reservoir site was acquired, which could not be done for $100,000. Furthermore, it was provided that when the entire cost of land and materials and the cost of the dam and reservoir had been ascertained, the Commission could take possession, but no property in Pennsylvania could be acquired until satisfactory rights for flowage in Ohio had been obtained. The Pennsylvania-Ohio boundary divides the reservoir site so that three-fourths of the area is in Pennsylvania and one-fourth in Ohio.

In compliance with the Act of July 25, 1913, an estimate of the cost of the project was made, based on a thorough appraisal of the value of the land and buildings; detailed estimate of the value of timber and the cost of its removal; clearing the reservoir site; construction of dam and appurtenances; and relocation of railroads and highways. The conclusions reached in the 1912 report regarding the effect of the reservoir in increasing the low flow of the Shenango River were substantiated by further hydrographic studies.

The Legislature of 1915 passed an act appropriating $1,500,000 for the construction of the project, in amounts of $300,000 annually for a period of five years. Governor Brumbaugh withheld his approval of this appropriation on account of insufficient revenue, but signed the amendment of the act and approved the unexpended balance amounting to $65,000 provided by the Act of 1913.

PROGRESS REPORT.

The investigations in field and office have been continued during 1915 in accordance with provisional legislation. The maximum number of men employed on the engineering corps has been ten and the average number for the entire year was seven, the force being reduced to five at the end of the year. The nine rainfall stations and seven stream gaging stations established in connection with the project have been maintained, and in addition data has been received weekly from the following co-operative observers:

A. M. Orr, Greenville, Mercer County.
J. K. Harris, Sharon, Mercer County.
J. H. Brewster, New Castle, Lawrence County.
D. B. Woolcock, New Castle, Lawrence County.
Fred Kaatz, Ellwood City, Lawrence County.
W. E. Eakin, Beaver Falls, Beaver County.

HYDROGRAPHIC INVESTIGATIONS.

Hydrographic investigations have been continued for the purpose of definitely determining the effect of the proposed reservoir on the Shenango and Beaver rivers and showing the relation of the reservoir to problems concerning improvement of channel conditions which now demand attention in the Shenango and Beaver valleys.

Care has been exercised to verify the weekly reports of observers, and whenever unusual conditions in stream flow or rainfall have occurred, the reports have been promptly investigated and checked. The collection of evaporation data has been continued by observations at Turnerville and Linesville, and the height of ground water has been measured twice every month in typical wells within and surrounding the reservoir site.

DISCHARGE MEASUREMENTS.

During 1915 all of the stream gaging stations maintained by the Pymatuning Reservoir Project have been rated, the detailed information relating to daily gage heights, daily discharge, meter measurements, etc., being published in the appendix of this report by the

Hydrographic Division. A total of 155 discharge measurements were made during the year.

Accurate rating curves and discharge data have been completed at the following stations:

Shenango River at Turnerville.
Shenango River at Sharon.
Shenango River at New Castle.
Little Shenango River at Salem.
Little Shenango River at Greenville.
Pymatuning Creek at Orangeville.
Mahoning River at New Castle.
Beaver River at Newport.

The hydrographic information collected is the basis both for the calculations relating to the supply to and draft from the reservoir and for the determination of the effect of the reservoir on floods and low water.

The effect of the Pymatuning Reservoir on flood heights in the Shenango River at New Castle has been studied, and the relation of the reservoir to the proposed improvement in channel conditions within the city limits has been calculated. In this connection, plans and profiles have been drawn showing the channels of Neshannock Creek and Shenango River in detail. The combination of floods on the Neshannock, Shenango and Mahoning has received special attention.

A comprehensive report has been submitted on the calculation of backwater in the Beaver River from College to Rochester, due to the proposed embankment of the Pittsburgh, Youngstown & Ashtabula Railway and the Pittsburgh & Lake Erie Railroad, and on the effect of the Pymatuning Reservoir in reducing stream heights in this vicinity.

A profile of the Shenango and Beaver rivers has been made, aggregating 109.8 miles of levels, to determine the high and low water slopes in these streams. Elevations of the floors and water clearances, together with the cross sections of the channels of the streams, were taken at each of the 82 bridges over these rivers, and additional data at all dams and at various intermediate points were obtained.

Data has been compiled to show the effect of the reservoir on droughts and on floods at Sharon, Mercer County. The information collected on the work involving property and timber surveys and appraisals, the investigations for the preliminary location and design of the dam and appurtenances, together with the estimate of the cost of project, has likewise been compiled.

PROPERTY SURVEYS.

The location of the properties in the almost impenetrable portions of the swamp, at the upper end of the reservoir, which are accessible only when the surface is frozen, has been continued during cold weather and will be completed early in 1916. On the completion of these surveys, a total of 23,270 acres, or 36.4 square miles, will have been definitely determined, about 250 miles of property lines enclosing the separate parcels having been surveyed by transit, accurately measured by steel tape, and tied into the triangulation system. About 70 per cent of the property maps have been traced on cloth for filing and future reference.

The information collected on the timber surveys has been mapped on a scale of 300 feet to an inch and the extent of the cleared and timbered areas within the reservoir site determined. About 30 per cent of the maps showing the areas and the amount of clearing and grubbing within the reservoir site have been traced on cloth.

A list of all parcels to be affected by the reservoir has been completed, showing the owners of the property and the book and page where the deed descriptions are recorded in the offices of the Recorders of Deeds at Meadville, Pa., and at Jefferson, O. In case the deeds have not been recorded, the deed descriptions have been obtained from the owners. This work involved the investigation of about 380 deeds referring to 242 parcels in Pennsylvania, of which 17 were obtained in the field from the owners. All of the 53 parcels in Ohio were investigated and found to be recorded and shown on maps in the office of the Recorder of Deeds at Jefferson, O.

PERMANENT BENCH MARKS.

Ninety-four miles of primary levels were run and 135 bench marks established on the preliminary survey in 1912, to determine the elevation above sea level of points in and about the reservoir site, for the purpose of furnishing convenient reference points to check the elevations as later determined by the topographical survey. Many of these bench marks have served their purpose and will be submerged when the reservoir is completed or destroyed during construction work. During October and November 44 permanent bench marks were provided for on concrete monuments constructed above the limits of the reservoir, and 9 triangulation stations have been permanently monumented. Levels will be run from the bench marks of the 1912 survey to establish the permanent bench marks on the new monuments as soon as climatic conditions are favorable for such work.

CHAPTER V.

WATER SUPPLY AND WATER POWER COMPANIES.

WATER SUPPLY COMPANIES.

During the year 1915 the Water Supply Commission approved nine applications for the incorporation of water supply companies and one consolidation by purchase of property and franchises. Two of the applications for incorporation did not receive the approval of other State Departments in time to become effective this year, while one company was incorporated in 1915 which had received the approval of the Commission in 1914. A new source of supply was granted to the Cairnbrook Water Company, which was approved by the Governor on April 23d, 1915.

Table No. 2 presents the number of water companies incorporated each year since the creation of the Commission and the present status thereof.

TABLE NO. 2.

Number of Water Supply Companies Incorporated Each Year from May 4, 1905, to December 31, 1915, and their Present Status.

Year.	Number incorporated.	In Operation.		Absorbed by Companies in Operation.		Under Construction.		Not Operating.	
		Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
1905,	4	3	75	1	25	0	....	0	....
1906,	27	15	55	4	15	0	....	8	30
1907,	31	19	61	3	10	0	....	9	29
1908,	18	12	67	0	....	0	....	6	33
1909,	30	18	60	8	26	2	7	2	7
1910,	25	20	80	3	12	1	4	1	4
1911,	25	17	68	3	12	0	....	5	20
1912,	15	11	73	1	7	0	....	3	20
1913,	16	13	81	0	....	1	6	2	13
1914,	5	3	60	2	40	0	....	0	....
1915,	8	5	62	0	....	0	....	3	38
Total,	204	136	67	25	12	4	2	39	19

Tables Nos. 3, 4 and 5 show respectively the water companies incorporated, the source of supply and character of works of the operating companies and the consolidations effected among water supply companies during the year 1915.

TABLE NO. 3.

Water Supply Companies Incorporated During the Year 1915.

Number.	Name.	Date of Incorporation.	Territory Covered by Charter.	Status.
1	Clymer Citizens Water Co.	August 3, 1915, ...	Clymer borough, Indiana county.	Active.
2	Dalmatia Water Co., ..	December 16, 1915, ...	Dalmatia, Lower Mahanoy township, Northumberland county.	Not in operation.
3	Florin Water Co. (Merger).	*January 20, 1915, ...	Mt. Joy township and portion of East Donegal township, Lancaster county.	Active.
4	Geigertown Water Co.,	December 31, 1915, ...	Robeson township, Berks county.	Active.
5	Grand View Heights Water Co.	September 17, 1915, ...	Grand View Heights, East Norriton township, Montgomery county.	Active.
6	Gratz Water Company,..	May 28, 1915, ...	Gratz borough, Dauphin county.	Not in operation.
7	Hammersley Water Co.,	December 1, 1915, ...	Farwell, Chapman township, Clinton county.	Active.
8	Mar-Dale Water Co., ...	October 29, 1915, ...	Porter township, Clinton county .	Not in operation.

*Approved by the Commission December 1, 1914.

TABLE NO. 4.

Water Supply Companies Incorporated in 1915 Which Are in Operation.

Name .	Territory Supplied.	Source of Supply.	System of Supply.
Clymer Citizens Water Co.,	Clymer borough, Indiana county.	Springs and well, ..	Gravity and pumping.
Florin Water Co., ...	Florin, Mt. Joy township, and East Donegal township, Lancaster county.	Drilled well, ...	Pumping.
Geigertown Water Co., ...	Geigers Mills, Robeson township, Berks county.	Springs, ...	Gravity.
Grand View Heights Water Co.	Grand View Heights, East Norriton township, Montgomery county.	Norristown Insurance and Water Co.	Gravity.
Hammersley Water Co., ...	Farwell, Chapman township, Clinton county.	Drilled well.	Pumping.

TABLE NO. 5.

Consolidation of Water Supply Companies Effected During the Year 1915.

Holding Company.		Constituent Companies.			
Name.	Incorporated for	Name and Date of Incorporation.	Incorporated for	Form of Consolidation.	Date of Consolidation.
Bethlehem City Water Co., ...	Salisbury township, Lehigh county, June 13, 1914.	Lower Saucon Township Water Co., November 25, 1914.	Lower Saucon township, Lehigh county.	Sale of property and franchises.	*January 14, 1915.
Florin Water Co., ...	Mt. Joy township and portion of East Donegal township, Lancaster county.	Florin Water Co., September 12, 1911.	Mt. Joy township, Lancaster county. Florin.	Merger, ...	†January 20, 1915.
		East Donegal Township Water Co., November 13, 1912.	East Donegal township, Lancaster county.	Merger, ...	†January 20, 1915.
Lebanon Valley Consolidated Water Supply Co.	Lebanon county, (Merger), August 11, 1903.	Gravel Hill Water Supply Co., September 17, 1909.	North Londonderry township, Lebanon county.	Sale of property and franchises.	**April 22, 1915.
		Jonestown Water Supply Co., April 26, 1910.	Jonestown borough, Lebanon county.	Sale of property and franchises.	May 7, 1915.
		North Annville Water Supply Co., September 17, 1909.	North Annville township, Lebanon county.	Sale of property and franchises.	May 7, 1915.
		North Cornwall Water Supply Co., September 17, 1909.	North Cornwall township, Lebanon county.	Sale of property and franchises.	May 7, 1915.
		South Annville Water Supply Co., September 17, 1909.	South Annville township, Lebanon county.	Sale of property and franchises.	May 7, 1915.

*Sale approved by the Commission December 22, 1914.
†Merger approved by the Commission December 1, 1914.
**Sale approved by the Commission December 1, 1914.

WATER POWER COMPANIES.

The Commission approved three applications for the incorporation of proposed water power companies, which, however, did not receive the approval of the Public Service Commission before the end of the year.

Since the organization of the Commission in 1905, fifty-two water power companies have been incorporated, of which ten are operating, four have been merged into one of the operating companies, three have been dissolved and thirty-five are not in operation. Two of the operating systems represent developments constructed prior to the granting of the charters, one being a merged company and the other representing four companies operated by a single holding company. Included in the thirty-five companies which are not in operation are twenty-two charters which have been merged into three consolidations. The fifty-two charters may be classified into twenty projects, of which six are in operation, two are defunct by dissolution of the companies, eleven have been constructed and on one construction has been suspended.

CHAPTER VI.

FLOOD WARNING AND PRECIPITATION.

INTRODUCTION.

The Flood Warning Service was confined during the year 1915 almost entirely to the Susquehanna Basin, lack of sufficient appropriation limiting its contemplated further extension and development in other basins.

Owing to the insufficient amount of collected data, it has been impossible to establish a flood warning system for the Delaware Basin, although it is expected that the high flows of the following spring months will furnish much of the desired information necessary for a comprehensive system on the Lehigh and Schuylkill rivers.

In the Ohio Basin, flood predictions have been made by the Local Forecaster of the United States Weather Bureau at Pittsburgh, who has been furnished with such information as he desired from our precipitation observers located in the western part of the State.

The stations established for flood warning purposes, listed in tables 23 to 26, inclusive, on pages 106, 107 and 108, of the 1914 report, have been maintained and one additional station has been established on the North Branch Susquehanna River at Binghamton, N. Y.

It is the policy of the Commission, in furnishing flood warnings, to predict approximate stages with as timely a notice as possible and not to wait until the crest stages are reached in the upper tributaries of the main stream in order to make predictions within a few tenths of a foot, the time interval being considered of more importance than an exact stage.

In order that timely warnings may be given, the predictions are usually made when the discharges in the upper reaches of the stream, upon which the maximum stages lower down the river largely depend, are rapidly increasing; for example, on the evening of July 8th, 1915, when the predictions for the North Branch Susquehanna River were made, the North Branch at Binghamton, N. Y., and the Chemung River at Corning, N. Y., were rising at the rate of one foot per hour.

FLOOD WARNINGS—1915.

JANUARY 6-9, 1915: The storm which traversed the Great Lakes on January 6th and 7th, 1915, accompanied by high temperature, caused but a moderate precipitation over Pennsylvania, although its effects were quite marked on streams located in the central and western parts of the State, where large amounts of snow had accumulated.

In the western part of the State, with an average precipitation of about 0.9 of an inch, there was a rise of 10 feet in the Allegheny River at Kittanning and a rise of 16 feet in the Monongahela River at Lock No. 4, which resulted in a gage height of about 20 feet on the Ohio River at Pittsburgh, which was 2 feet below the flood stage or danger line.

The average rainfall over the Susquehanna Basin above Harrisburg was about 1.4 inches, with an average of about 1.0 inch over the North Branch and 1.7 inches over the West Branch and Juniata basins; however, the run-off from this storm was probablv augmented by another inch of precipitation due to the melting of snow. On the morning of January 7th, 1915, flood predictions were wired to the cities and towns along the Susquehanna River and its principal tributaries, noting that the stages would likely be affected by ice gorges along the main streams if ice movements occurred.

The predicted stages and those which actually occurred are shown in the following table:

TABLE NO. 6.

Predicted and Actual Stages Reached January 7-9, 1915.

Location.	Stream.	Predicted Stage.	Maximum Stage.
Corning,	Chemung River,	13.0	14.0
Binghamton,	Susquehanna River, North Branch,	9.5	9.8
Towanda,	Susquehanna River, North Branch,	12.0	13.8
Wilkes-Barre,	Susquehanna River, North Branch,	18.5	18.8
Danville,	Susquehanna River, North Branch,	15.0	15.6
Clearfield,	Susquehanna River, West Branch,	9.0	8.0
Renovo,	Susquehanna River, West Branch,	14.0	13.0
Lock Haven,	Susquehanna River, West Branch,	10.5	10.0
Jersey Shore,	Susquehanna River, West Branch,	22.0	18.0
Williamsport,	Susquehanna River, West Branch,	18.0	16.3
Lewisburg,	Susquehanna River, West Branch,	17.0	13.6
Huntingdon,	Juniata River, Frankstown Branch,	7.0	8.5
Newport,	Juniata River,	11.0	9.5
Harrisburg,	Susquehanna River,	13.0	12.4

These predictions were issued about 24 hours in advance of the maximum stages along the West Branch Susquehanna River, 36 hours previous to the maximum stages along the North Branch and about 48 hours before the crest stage reached Harrisburg. The North Branch rose about 15 feet in 36 hours at Wilkes-Barre and the West Branch about the same amount in the same length of time at Williamsport.

In the Juniata River at Newport there was a rise of about 6 feet in 48 hours and a rise of about 9 feet in the same length of time occurred in the main Susquehanna at Harrisburg. During these high stages there was a general breaking up of the ice throughout the entire Susquehanna system which had been intact since early in December. The ice gorged in the West Branch Susquehanna River between Bower and Clearfield during the afternoon and evening of January 7th, 1915, retarding the discharge for about 10 hours, which allowed a large part of the run-off from Sinnemahoning, Bald Eagle and Pine creeks to precede the flood flow from the upper reaches, thereby materially reducing the expected stages in the lower portions of the West Branch. No damage was reported from high water along the main stream, although several of the small tributaries were badly gorged, causing some damage from backwater and the accumulation of ice on several highways, which obstructed traffic for several days.

In the eastern part of the State there was an average precipitation of about 1.0 inch, which caused no exceptional stages, except in the lower Schuylkill, where increased stages of about 10.5 feet occurred.

JANUARY 11-14, 1915: The gulf storm which traversed the southeastern part of the United States on January 11th to 13th, 1915, inclusive, caused a varied precipitation over Pennsylvania, ranging from an average of about 1.0 inch in the western part of the State to about 2.5 inches over the Delaware Basin.

The precipitation over the Allegheny Basin was largely in the form of snow, ranging from 8 to 15 inches, being reported from some localities as the heaviest in 6 years; over the Monongahela Basin the precipitation was in the form of rain, which caused a rise of about 8 feet at Lock No. 4, this being the only stream appreciably affected in the Ohio system.

It is interesting to note that in the Susquehanna Basin the average precipitation was about 0.5 of an inch in excess of the storm of January 6th and 7th, 1915, resulting in stages along the Susquehanna and its principal tributaries much lower than those experienced the previous week when there was a precipitation 25 per cent less. The average stage along the North Branch was 7 feet lower, along the West Branch 9 feet lower and along the main Susquehanna and Juniata the stages ranged from 1 to 4 feet lower than on the 6th and 7th of January. The maximum or crest stages occurred at all of the important stations throughout the Susquehanna Basin within 5 hours of each other.

This proves the importance of the temperature factor in making estimates of the amount of run-off, as the precipitation of January 12th and 13th, 1915, over the North Branch above Wilkes-Barre and over the West Branch above Williamsport was largely in the form of snow.

In the eastern part of the State, the precipitation was in the form of rain and had a marked effect on the stream flow. The Schuylkill River at Reading rose 10 feet in 24 hours to stage 12.3 feet, being the highest water at that location since February, 1908, although it was about 2 feet below flood line.

The lower Schuylkill River at Conshohocken rose 14.5 feet in 24 hours to stage 19.1 feet, necessitating the suspension of operations in the mills and factories along the river in Manayunk, and, according to press reports, causing considerable damage at Conshohocken, Norristown and Bridgeport.

The Lehigh River rose 8 feet at South Bethlehem to stage 11.5 feet which was the highest since March, 1913.

At Port Jervis, N. Y., the Delaware River rose about 6 feet, while in Philadelphia on January 14th, 1915, a portion of Delaware Avenue was flooded to a depth of 2 feet, caused by a combination of flood stages and a 10-foot tide, this being the highest tide recorded in the Delaware River for 15 years, the ordinary rise being about 6 feet. Water was backed up in sewers, cellars flooded and merchants compelled to move their goods to the second floors.

JANUARY 18-20, 1915: On January 18th and 19th, 1915, another storm traversed the Atlantic Coast States, accompanied by high temperature and a precipitation of about 1.0 inch over western Pennsylvania, 0.9 of an inch over the Susquehanna Basin and 1.3 inches over the eastern part of the State. The average stages of the principal tributaries of the Ohio River were increased about 7 feet, which resulted in a 17-foot stage at Pittsburgh. Large amounts of snow which had accumulated in the upper reaches of the Susquehanna Basin during the storm of January 12th and 13th, 1915, were melted by the warm rain, causing an increased stage of 9 feet in the North Branch Susquehanna River at Wilkes-Barre, 8 feet in the West Branch at Williamsport, 5 feet in the Juniata River at Newport and 6 feet in the main Susquehanna River at Harrisburg.

The following table shows the stages predicted on January 19th, 1915, and those actually reached from 20 to 36 hours later:

TABLE NO. 7.

Predicted and Actual Stages Reached January 19-20, 1915.

Location.	Stream.	Predicted Stage.	Maximum Stage.
Corning,	Chemung River,	9.0	8.9
Binghamton,	Susquehanna River, North Branch,	12.0	12.3
Towanda,	Susquehanna River, North Branch,	11.0	11.1
Wilkes-Barre,	Susquehanna River, North Branch,	17.5	17.5
Danville,	Susquehanna River, North Branch,	14.0	14.2
Renovo,	Susquehanna River, West Branch,	8.0	8.8
Williamsport,	Susquehanna River, West Branch,	11.5	12.1
Newport,	Juniata River,	10.0	10.2
Harrisburg,	Susquehanna River,	12.0	11.9

FEBRUARY 1-3, 1915: The storm which was centered over St. Louis, Mo., on the morning of February 1st, 1915, traversed the eastern part of the United States in a due easterly direction and caused an average precipitation of about 2.0 inches over the Ohio Basin, 1.8 inches over the Susquehanna Basin and 3.2 inches over the lower Delaware Basin.

Large amounts of accumulated snow were melted in the Ohio Basin and the Allegheny River at Kittanning rose about 15 feet in 30 hours to stage 19.2 feet; the Kiskiminitas River at Avonmore rose 14 feet in 24 hours to stage 21.3 feet; the Monongahela River rose 20 feet in 48 hours to stage 30.5 feet and the Youghiogheny River at Connellsville rose 7 feet to stage 11.7 feet, resulting in a stage of 28.4 feet in the Ohio River at Pittsburgh, the highest since March, 1913, at which stage the damage, according to the Pittsburgh Flood Commission Report, amounts to approximately $600,000. Low sections of the city along the Allegheny and Ohio rivers were inundated, trolley and railroad traffic in the affected section were at a standstill, thousands of people were thrown out of employment and hundreds of families compelled to leave their homes. The stage was within 7 feet of the great flood of 1907, and the accurate and timely warnings issued by the Local Forecaster of the United States Weather Bureau at Pittsburgh prevented much damage which otherwise would have occurred. A stage of 28 to 30 feet was predicted and the actual crest reached was 28.4 feet.

In the Susquehanna Basin the precipitation over the North Branch was about 1.5 inches; over the West Branch 1.6 inches and 1.9 inches over the Juniata, though the West Branch and Juniata were the only streams materially affected in the Susquehanna system.

The West Branch at Williamsport rose 7 feet, the Juniata at Newport 9 feet and the main Susquehanna at Harrisburg 5 feet. On the morning of February 2d, 1915, maximum stages were predicted for Newport and Harrisburg, which were reached on the morning of the 3d.

The predicted stages and those which actually occurred are shown in the following table:

TABLE NO. 8.

Predicted and Actual Stages Reached February 2-3, 1915.

Location.	Stream.	Predicted Stage.	Maximum Stage.
Newport,	Juniata River,	13.5	12.9
Harrisburg,	Susquehanna River,	10.0	9.8

The Schuylkill River rose 7.5 feet to stage 9.1 feet at Reading, and 16 feet in 18 hours to stage 20.4 feet at Conshohocken, which was approximately 5 feet lower than the destructive floods of 1865, 1895 and 1902. Mills at Norristown, Conshohocken and Manayunk suspended operations, and at West Manayunk dwellings were flooded and families compelled to leave their homes. At Fairmount Park, the drives on both sides of the river were inundated, and the tracks of the Baltimore & Ohio Railroad were overflowed.

The Lehigh River at South Bethlehem rose about 7 feet in 15 hours to stage 10.2 feet, while a rise of about 3 feet was recorded in the Delaware River at Port Jervis, N. Y. Due to high tide and slight increased flow in the Delaware River, portions of Delaware Avenue in Philadelphia were again flooded to about the same depth as during the storm of January 14th, 1915.

FEBRUARY 15-17, 1915: On February 15th, 1915, a slight rainfall over Pennsylvania, which amounted to only 0.4 of an inch, accompanied by a high temperature, had marked effects on the streams where large amounts of snow had accumulated within their watersheds. In the Ohio Basin there was a rise of about 8 feet in the Allegheny River, while the Monongahela River was not appreciably affected. In the Susquehanna Basin large amounts of snow, containing high water equivalents, were melted and rather high stages were reached.

The following table shows the stages which were predicted on the evening of February 15th, 1915, and those which were actually reached 24 to 48 hours later:

TABLE NO. 9.

Predicted and Actual Stages Reached February 15-17, 1915.

Location.	Stream.	Predicted Stage.	Maximum Stage.
Corning,	Chemung River,	12.5	12.1
Binghamton,	Susquehanna River, North Branch,	10.5	10.9
Towanda,	Susquehanna River, North Branch,	12.0	12.8
Wilkes-Barre,	Susquehanna River, North Branch,	18.5	18.8
Danville,	Susquehanna River, North Branch,	15.0	15.3
Renovo,	Susquehanna River, West Branch,	10.0	9.7
Williamsport,	Susquehanna River, West Branch,	13.0	12.7
Newport,	Juniata River,	14.5	14.2
Harrisburg,	Susquehanna River,	13.5	12.9

In the eastern part of the State, throughout the Delaware system, there were no perceptible changes in the streams, except in the Delaware River which rose about 5 feet at Port Jervis, N. Y.

FEBRUARY 24-26, 1915: The storm which passed over Pennsylvania on February 24th and 25th, 1915 ,caused a precipitation of about

0.6 of an inch over the western part of the State, 0.7 of an inch over the Susquehanna Basin and 1.4 inches over the eastern part of the State, which resulted in a general rise of 4.5 feet in the Allegheny Basin, 2 feet in the Monongahela Basin and 5 feet throughout the Delaware system.

The high temperature which accompanied the rainfall over the Susquehanna Basin caused a general melting of the remaining snow and ice, resulting in high stages which gave the greatest run-off on the main Susquehanna since March, 1914.

In the North Branch Susquehanna River there was a rise of 12.5 feet at Towanda, 15 feet at Wilkes-Barre and 12 feet at Danville. The West Branch rose about 11 feet at Williamsport, the Juniata River 8 feet at Newport and the main Susquehanna 9 feet at Harrisburg.

The following table shows the stages predicted on the morning of February 25th, 1915, and those which actually occurred:

TABLE NO. 10.

Predicted and Actual Stages Reached February 25-26, 1915.

Location.	Stream.	Predicted Stage.	Maximum Stage.
Towanda,	Susquehanna River, North Branch	17.5	17.4
Wilkes-Barre,	Susquehanna River, North Branch,	25.0	23.8
Danville,	Susquehanna River, North Branch,	20.0	19.0
Williamsport,	Susquehanna River, West Branch,	18.5	17.1
Newport,	Juniata River,	14.0	14.5
Harrisburg,	Susquehanna River,	17.0	15.6

At Wilkes-Barre the river rose 5.5 feet above the flood line and the crest stage was reached at the same time as the maximum stage occurred at Harrisburg, 118 miles below, thereby showing that the crest stage at Harrisburg was the result of the West Branch and Juniata flow without accumulating the North Branch discharge, thus materially reducing the expected stage.

This was the sixth high stage or freshet experienced in the Susquehanna River since the first week in January, 1915, caused by storms of moderate intensity, accompanied by high temperatures, which melted large amounts of accumulated snow containing high water equivalents.

The prediction of the stage to be expected at Harrisburg was of importance for the reason that some of the open hearth furnaces of a nearby steel company become flooded at a stage exceeding 15 feet. On the morning of the 26th, at which time the gage reading was 15.6 feet, with the North Branch at Wilkes-Barre still rising, the steel company was informed that the maximum stage had been reached and that the river would recede during the day and night to a stage of about 14.5 feet by the next morning. This prediction was accepted and as the stage was 14.4 feet on the morning of the 27th, the company saved about $1,500 which would ordinarily have been spent in banking many of their furnaces.

During the months of January and February the total discharge of the Susquehanna River at Harrisburg, above which the drainage area is 24,100 square miles, was the greatest on record since 1891 and was about 78 per cent in excess of the recorded mean discharge for these months during this period and it was fortunate that the precipitation and run-off were distributed through the 2 months instead of several of the distinct freshets combining in one flood.

APRIL 10-13, 1915: On April 10th and 11th, 1915, an average precipitation over Pennsylvania of about 0.5 of an inch, affected only the North Branch in the Susquehanna Basin, where a rise of 4.5 feet occurred at Wilkes-Barre, and on April 11th, 1915, a stage of 6.5 feet was predicted as a maximum for Harrisburg, which crested at a stage of 6.6 feet on April 13th, 1915.

MAY 21-24, 1915: An average precipitation of about 1.4 inches over the Susquehanna Basin on May 21st and 22d, 1915, caused slight increased stages on the West Branch Susquehanna and Juniata rivers, amounting to about 5 feet, which caused an increased stage of about 2 feet at Harrisburg. On May 23d, 1915, a maximum stage of 5.8 feet was predicted for Harrisburg and a crest of 6.0 feet was reached on the 24th.

JUNE 2-4, 1915: The rainfall of June 2d and 3d, 1915, which amounted to an average of about 0.8 of an inch over the Susquehanna Basin above Harrisburg, was very unevenly distributed, there being an average of about 0.2 of an inch over the North Branch, 0.9 of an inch over the West Branch, and 1.7 inches over the Juniata, which was the only stream appreciably affected. There was an increased stage of about 4 feet at Huntingdon and a rise of about 10 feet in 24 hours at Newport, which resulted in an increase of about 2.5 feet at Harrisburg.

The following table shows the stages predicted on the morning of June 3d, 1915, and those which actually occurred:

TABLE NO. 11.

Predicted and Actual Stages Reached June 3-4, 1915.

Location.	Stream.	Predicted Stage.	Maximum Stage.
Huntingdon, ...	Juniata River, Frankstown Branch, ...	8.4	8.5
Newport, ...	Juniata River, ...	16.0	16.2
Harrisburg, ...	Susquehanna River (morning of the 4th), ...	7.0	7.0
Harrisburg, ...	Susquehanna River (for maximum), ...	8.0	7.1

There was an increased flow on the West Branch Susquehanna River which amounted to a rise of about 3 feet at Williamsport, and its discharge followed immediately after that of the Juniata instead of uniting with it as was expected, and, therefore, caused a crest stage at Harrisburg which extended over a period of several hours and at a lower gage height than was anticipated.

JULY 8-10, 1915: Another rainfall of uneven distribution occurred over the Susquehanna Basin on July 8th, 1915, which amounted to an average of about 2.0 inches over the North Branch Susquehanna River, 1.4 inches over the West Branch and 0.3 of an inch over the Juniata, the North Branch being the only stream seriously affected.

The only locations at which damage was likely to occur were at Wilkes-Barre on the North Branch where it was expected that the river would reach a stage of 4.5 feet above the flood line, and at Harrisburg where The Robert Grace Construction Company were constructing a new bridge across the Susquehanna River for the Cumberland Valley Railroad Company, at which location it had a low, timber bent, construction trestle extending the entire width of the west channel. On the evening of the 8th messages were sent to Wilkes-Barre stating that a maximum stage of about 22.5 feet would probably reach that city by the following evening. The construction company at Harrisburg was warned of an approaching 10.0 foot stage for the morning of the 10th, and that if there was an increased flow in the West Branch, the maximum stage at Harrisburg would exceed the 10.0 foot mark. On the morning of the 9th an increased stage of 6.0 feet in the West Branch was reported from Williamsport and the construction company at Harrisburg was informed that the maximum stage would not exceed 12 feet and would probably occur during the afternoon of the 10th. This warning permitted the company to secure its construction trestle to the bridge piers and remove a large part of the longitudinal bracing, which might otherwise have been carried away.

The following table shows the stages predicted and those which actually occurred:

TABLE NO. 12.

Predicted and Actual Stages Reached July 8-10, 1915.

Location.	Stream.	Predicted Stage.	Maximum Stage.
Corning,	Chemung River,	12.0	13.0
Binghamton,	Susquehanna River, North Branch,	15.0	15.7
Towanda,	Susquehanna River, North Branch,	16.5	17.5
Wilkes-Barre,	Susquehanna River, North Branch,	22.5	22.6
Danville,	Susquehanna River, North Branch,	18.0	17.8
Harrisburg,	Susquehanna River (for morning of the 10th),	10.0	10.0
Harrisburg,	Susquehanna River (for maximum stage),	12.0	11.2

All maximum July flows on the North Branch and the main Susquehanna were broken on the 10th. At Wilkes-Barre, the maximum discharge was 105 per cent in excess of any previous July record, and the stage of 22.6 feet was 6.3 feet higher than the previous July maximum which occurred in 1902.

At Harrisburg, the discharge was 42 per cent in excess of any previous July record and equivalent to a stage of 10.6 feet previous to the construction of the Harrisburg Sanitary Dam and 2.3 feet higher than the previous July maximum which occurred in 1902.

AUGUST 1-8, 1915: The rainfall which occurred over Pennsylvania during the first three days in August, amounting to an average of about 1.2 inches over the Ohio Basin, 1.6 inches over the Susquehanna Basin and about 4.0 inches over the Delaware Basin, terminated in two distinct storms on the 3d, one being centered over the Great Lakes, which gave a precipitation of 5.76 inches at Erie, causing the destructive flood in Mill Creek which resulted in a loss of 34 lives and monetary losses estimated at $2,000,000, and the other centered over the southeastern part of Pennsylvania, which gave a precipitation of 2.76 inches at Philadelphia, being one of the most serious storms to crops, foliage and wire service that had been experienced in eastern Pennsylvania for many years.

In the Ohio Basin there was a general rise of about 5 feet in the Allegheny and Monongahela rivers; in the Susquehanna system the only tributary appreciably affected was the North Branch, which rose about 7 feet at Towanda, 10 feet at Wilkes-Barre and 8 feet at Danville.

Maximum stages to be expected along the North Branch and on the main Susquehanna at Harrisburg were predicted on the evening of the 5th as follows:

TABLE NO. 13.

Predicted and Actual Stages Reached August 4-8, 1915.

Location.	Stream.	Predicted Stage.	Maximum Stage.
Corning,	Chémung River,	8.0	8.3
Binghamton,	Susquehanna River, North Branch,	10.5	10.3
Towanda,	Susquehanna River, North Branch,	10.0	10.2
Wilkes-Barre,	Susquehanna River, North Branch,	16.0	15.5
Danville,	Susquehanna River, North Branch,	13.0	12.5
Harrisburg,	Susquehanna River,	7.3	7.6

In the Delaware system there was a rise in the Lehigh River amounting to about 4 feet at South Bethlehem, while the Schuylkill River rose about 5 feet at Reading and 11.5 feet at Conshohocken in

24 hours to stage 19.0 feet, causing flood conditions along the lower Schuylkill and again necessitating the suspension of operations in mills and factories at Bridgeport, Conshohocken and Manayunk.

The Manayunk Canal broke at several places, the river front at Norristown was inundated, and the east drive at Fairmount Park was flooded for half a mile. Many streams in the Philadelphia district overflowed their banks, railroad and trolley traffic was interrupted, and small creeks were reported as being at their highest stage for many years.

AUGUST 21, 1915: The storm of August 21st, 1915, which gave a precipitation of about 0.9 of an inch over the Ohio Basin, 1.5 inches over the Susquehanna Basin and 0.5 of an inch over the Delaware Basin, had no marked effect on the large streams. In the vicinity of Harrisburg there was a rainfall of 4.6 inches, which caused a rise of 2.5 feet in the Susquehanna River. The flow in Paxton Creek approached the maximum capacity of the concrete channel, although no damage occurred owing to the flood prevention works above the city.

The excess of rainfall during the month of August, which averaged about 2.6 inches over the State, resulted in high river discharges for this season of the year. The Allegheny River run-off for the month was 190 per cent in excess of the mean for 11 years, 67 per cent in excess of the previous maximum record which occurred in 1905, and 1,000 per cent in excess of the minimum record which occurred in 1910.

At Harisburg the Susquehanna River run-off for the month was 155 per cent in excess of the mean for 25 years, 14 per cent in excess of the previous maximum which occurred in 1901, and 740 per cent in excess of the minimum record which occurred in 1910.

The monthly run-off in the Lehigh River at South Bethlehem was 187 per cent in excess of the mean for 9 years, 42 per cent in excess of the previous maximum which occurred in 1903, and 660 per cent in excess of the minimum record which occurred in 1910. The Delaware River at Port Jervis, N. Y., discharge for the month was 253 per cent in excess of the mean for 11 years, 131 per cent in excess of the previous maximum which occurred in 1906, and 1,025 per cent in excess of the minimum record, which occurred in 1908.

PRECIPITATION.

In addition to about 115 precipitation stations maintained in Pennsylvania by the United States Weather Bureau and many others operated by individuals, corporations and private enterprises, the Water Supply Commission has established 20 stations, 2 of which are in Ohio, and are described in the following table:

TABLE NO. 14.

Precipitation Stations Established by Water Supply Commission.

Location.	County.	Approximate Elevation.	Established.	Observer.	Observations.
Claridge,	Westmoreland,	1080	July 18, 1914,*	W. S. Kemerer,	Twice daily, A. M. and P. M.
Cloe,	Jefferson,	1415	Nov. 18, 1913,	Buffalo, Rochester and Pittsburgh Ry. Co.,	Twice daily, A. M. and P. M.
Creekside,	Indiana,	1105	Nov. 18, 1913,	Buffalo, Rochester and Pittsburgh Ry. Co.,	Twice daily, A. M. and P. M.
Cresson,	Cambria,	2215	Oct. 29, 1913,	Cresson Sanatorium,	Twice daily, A. M. and P. M.
Eagles Mere,	Sullivan,	2060	Dec. 1, 1913,	E. S. Chase,	Twice daily, A. M. and P. M.
Falls Creek,	Jefferson,	1495	Oct. 23, 1913,	Buffalo, Rochester and Pittsburgh Ry. Co.,	Twice daily, A. M. and P. M.
Hadley,	Mercer,	1050	Jan. 1, 1914,	Mrs. C. O. Powell,	Once daily, A. M.
Harrisburg,	Dauphin,	405	July 13, 1914,	Water Supply Commission,	Twice daily, A. M. and P. M.
Ketner,	Elk,	1780	Nov. 18, 1913,	Buffalo, Rochester and Pittsburgh Ry. Co.,	Twice daily, A. M. and P. M.
Kinsman, Ohio,	Trumbull,	925	Jan. 1, 1914,	A. B. Allen,	Once daily, A. M.
Linesville,	Crawford,	1110	Feb. 25, 1912,	Mrs. H .M. Patterson,	Once daily A. M.
Murrysville,	Westmoreland,	900	July 14, 1914,*	James Cruikshank,	Twice daily, A. M. and P. M.
Pennline,†	Crawford,	1030	Dec. 1, 1914,	Miss Retta Crumb,	Once daily, A. M.
Summit,	Crawford,	1150	Jan. 24, 1914,	L. E. Dickey,	Once daily, A. M.
Trafford,	Westmoreland,	800	July 13, 1914,*	A. Hackenbery,	Twice daily, A. M. and P. M.
Transfer,	Mercer,	1020	Feb. 4, 1914,	H. L. Polley,	Once daily, A. M.
Turnerville,	Crawford,	1045	Feb. 27, 1912,	S. A. Marvin,	Once daily, A. M.
Union City,	Erie,	1200	Dec. 29, 1913,	A. G. Buller,	Twice daily, A. M. and P. M.
Westford,	Crawford,	1100	Nov. 13, 1913,	C. C. Collins,	Once daily, A. M.
Williamsfield, Ohio,	Ashtabula	1080	Jan. 1, 1914,	Mrs. Kate Leonard,	Once daily, A. M.

*Discontinued August 31, 1915. †Dec. 24, 1913 to Nov. 30, 1914, inclusive, this station was located at Padanaram, O.

The daily, monthly and annual precipitation observed at the Water on the following pages.

TABLE

DAILY, MONTHLY AND

DAILY PRECIPITATION

Station.	Day of Month.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Linesville,	T.	.04	....	....	....	....	....	....	.10	T.	....	.08	.05	....
Turnerville,	....	....	....	....	....	....	....	....	.11	....	....	.11	....	....

DAILY PRECIPITATION

Station.	Day of Month.												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Linesville,	.25	.38	.72	....	....	....	.44	.26	....	.02	....	.05	.05
Turnerville,	.29	.43	.56	....	....	....	.66	....	.04	....	....	....	.04

DAILY PRECIPITATION

Station.	Day of Month.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Linesville,	....	....	....	....	.64	.56	.01	....	....	....	.50	....	.12	.49
Turnerville,	....	....	....	....	....	.22	....	....	....	....	....	.48	.47	.03

DAILY PRECIPITATION

Station.	Day of Month.												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Linesville,	....	1.15	....	.01	....	....	....	T.	....	....	....	T.	.01
Turnerville,	....	.71	....	....	....	....	....	....	....	....	....	....	....

Supply Commission stations since date of establishment are shown

NO. 15.

ANNUAL PRECIPITATION.

FOR MARCH, 1912.

Day of Month.																	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
.52	.17	....	....	....	....	.76	.01	....	.46	.29	....	....	T.	.55	.15	....	3.18
.54	....	....	.45	....	....	.97	....	....	.42	.24	.28	....	....	.78	....	....	3.90

FOR APRIL, 1912.

Day of Month.																	Total.
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
.29	1.00	....	....	.28	.01	....	....	.33	.06	T.	T.	.03	....	....	1.30	.09	5.56
....	.96	....	....	.20	....	....	....	.02	....	....	.05	....	....	....	1.19	.30	4.74

FOR MAY, 1912.

Day of Month.																	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
....	.51	.02	.03	T.	....	....	.05	....	....	....	....	....	....	.95	.02	....	3.90
....	.34	.39	....	....	....	....	....	....	....	....	....	....	....	.80	.05	....	2.78

FOR JUNE, 1912.

Day of Month.																	Total.
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
....	.50	.64	.06	T.	....	....	T.	.01	....	.09	T.	...	....	....	....	....	2.47
....	.54	.65	.15	....	....	....	.21	....	....	....	....	....	....	....	....	....	2.26

TABLE NO. 15

DAILY PRECIPITATION

Station.	Day of Month.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Linesville,	....	....	.44	....	T.	....	....	....	....	.02	....	.03	....	.77
Turnerville,	....	....	....	....	....	....	....	....	....	....	....	.38	....	.68

DAILY PRECIPITATION

Station.	Day of Month.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Linesville,	.01	.01	.16	.03	....	....	....	.33	.06	.42	.05	.88	T.	.01
Turnerville,	.28	.16	....	....	....	....	....	.28	....	.57	.20	....	....	....

DAILY PRECIPITATION

Station.	Day of Month.												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Linesville,	....	.07	.32	T.	....	.19	....	....	....	....	T.	....	....
Turnerville,	....	.20	.33	....	....	.33	....	....	....	....	....	....	....

DAILY PRECIPITATION

Station.	Day of Month.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Linesville,	.12	.05	....	....	....	....	....	....	.13	.30	.21	....	....	....
Turnerville,	....	....	....	.23	....	....	....	....	....	.60	.43	....	....	....

DAILY PRECIPITATION

Station.	Day of Month.												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Linesville,	.30	.04	.15	....	T.	....	.51	.07	.13	.11	....	....	.02
Turnerville,	.15	.17	....	.10	....	....	.54	.07	.19	....	....	....	.02

—Continued.

FOR JULY, 1912.

Day of Month.																	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
T.	.03	T.	....	T.	....	.48	.02	....	1.04	.16	.04	....	....	.13	.01	.47	3.64
....	....	....	....	....	....	.40	.02	....	1.52	....	.20	....	....	....	....	....	3.20

FOR AUGUST, 1912.

Day of Month.																	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
....	....	....	T.	.04	.02	.02	....	.40	.03	....	1.63	.63	.02	.22	T.	.02	4.99
....	....	....	....	.04	.15	.20	....	.54	.06	....	1.58	.04	....	.28	....	.16	4.54

FOR SEPTEMBER, 1912.

Day of Month.																	Total.
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
....	T.	.59	....	.36	.01	....	....	....	1.22	.14	T.	....	.10	....	T.	.11	3.11
....	.19	....	....	.98	....	....	....	....	1.09	.37	....	....	....	....	....	....	3.49

FOR OCTOBER, 1912.

Day of Month.																	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
....	....	....	....	1.12	....	....	....	3.10	.12	.40	.19	....	T.	....	....	....	5.74
....	....	....	....	1.20	....	....	1.95	.09	....	.41	....	....	....	....	....	....	4.91

FOR NOVEMBER, 1912.

Day of Month.																	Total.
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
.07	.15	.06	....	....	....	....	....	....	....	....	.05	....	....	....	....	....	1.66
.07	.15	.06	....	....	....	....	....	....	....	....	.05	....	....	....	....	....	1.57

TABLE NO. 15

DAILY PRECIPITATION

Station.	Day of Month.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Linesville,	....	.80	....	....	.73	....	....	....	.50	....	....	....	....	....
Turnerville,	....	.70	....	....	....	1.05	....	....	....	....	....	....	....	....

MONTHLY PRECIPITATION

Station.	January.	February.	March.	April.
Linesville,	....	....	3.18	5.56
Turnerville,	....	....	3.90	4.74

DAILY PRECIPITATION

Station.	Day of Month.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Linesville,	....	....	....	....	....	.95	.30	.75	....	....	.80	.50	....	....

DAILY PRECIPITATION

Station.	Day of Month.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Linesville,	.24	....	....	.34	....	.24	.01	....	T.	....	.08	....	....	....
Turnerville,	.23	.03	....	.21	T.	.23	T.	....	T.	....	....	....	....	T.

DAILY PRECIPITATION

Station.	Day of Month.												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Linesville,	.07	....	.18	.15	.07	....	....	....	....	.20	.38	....	....
Turnerville,	....	....	.17	.12	.04	....	....	....	....	.11	.44	....	....

—Continued.

FOR DECEMBER, 1912.

Day of Month.																	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
.28 .20	....	....	.05	....	....	....	....	....	....	....	....	.40	....	....	1.31 1.06	....	4.07 3.01

FOR THE YEAR 1912.

May.	June.	July.	August.	September.	October.	November.	December.
3.90 2.78	2.47 2.26	3.64 3.20	4.99 4.54	3.11 3.49	5.74 4.91	1.66 1.57	4.07 3.01

FOR JANUARY, 1913.

Day of Month.																	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
....	.07	1.04	1.07	....	.74	....	....	.51	....	....	....	....	....	....	....	.14	6.87

FOR MARCH, 1913.

Day of Month.																	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
.15 .13	.09 .10	.11 .04	....	....	....	.... T.	.01 T.	.... 1.20	1.84 2.21	4.00 2.64	.76 1.01	.87 .68	....	....	....	.17 .17	8.91 8.88

FOR APRIL, 1913.

Day of Month.																	Total.
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
.11 .29	.... .06	....	....	....	.01 .03	....	....	....	....	....	....	....	1.00 .53	.... .13	.12 .30	....	2.29 2.19

TABLE NO. 15

DAILY PRECIPITATION

Station.	Day of Month.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Linesville,	....	....	....	....	....	....	....	....	.10	....	....	....	....	.13
Turnerville,	....	....	....	....	....	....	....	....	.14	....	....	....	....	....

DAILY PRECIPITATION

Station.	Day of Month.												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Linesville,	....	1.68	....	....	....	....	.80	....	....	....	....	....	....
Turnerville,	.80	....	....	....	....	....	.52	....	....	....	....	....	....

DAILY PRECIPITATION

Station.	Day of Month.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Linesville,	....	....	....	....	2.80	....	.15	....	.33	.14	....	.32	....	....
Turnerville,	....	....	....	....	1.92	.02	.05	....	....	.54	....	....	....	.13

DAILY PRECIPITATION

Station.	Day of Month.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Linesville,	....	....	....	....	....	....	....	....	.35	....	....	....	....	....
Turnerville,	....	....	....	....	....	....	....	....	.14	....	....	....	....	....

DAILY PRECIPITATION

Station.	Day of Month.												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Linesville,	....	....	....	....	....	....	....	....	....	....	....	....	....
Turnerville,	....	....	....	....	....	....	....	.05	....	....	....	....	....

—Continued.

FOR MAY, 1913.

Day of Month.																	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
.43	.66	....	....	....	....	....	.27	.07	....	....	.79	.09	....	....	....	....	2.54
.44	.62	....	....	....	....	....	.15	.09	....	....	....	.36	.41	....	....	.08	2.29

FOR JUNE, 1913.

Day of Month.																	Total.
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
....	....	....	....	....	....	1.11	.76	....	....	....	.18	2.00	.07	....	....	....	6.55
....	....	....	....	....	....	.67	.45	....	....	....	.58	1.21	.36	....	....	....	4.59

FOR JULY, 1913.

Day of Month.																	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
....	....	.35	....	....	....	....	....	.35	....	....	....	....	....	....	....	....	4.44
....	....	.92	....	....	....	....	....	....	.34	....	....	....	.70	.24	....	....	4.86

FOR AUGUST, 1913.

Day of Month.																	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
....	....	....	....	....	....	....	....	....	....	....	.15	....	....	....	....	....	0.50
....	....	....	....	....	....	....	.71	....	....	....	....	.06	....	.15	....	....	1.06

FOR SEPTEMBER, 1913.

Day of Month.																	Total.
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
....	....	....	.09	.78	....	....	.66	....	....	....	....	....	....	....	.08	.11	1.72
....	....	....	.20	.34	....	....	....	.05	....	....	....	....	.09	....	....	.12	0.85

TABLE NO. 15

DAILY PRECIPITATION

Station.	Day of Month.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Linesville,	.24	....	.98	....	....	....	....	....	....	....	....	.38	.04	....
Turnerville,	.26	.11	.68	....	....	....	....	....	....	....	....	....	.11	....

DAILY PRECIPITATION

Station.	Day of Month.												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Cresson,	....	....	....	.03	....	....	....	.19	2.10	.13	.03	....	.10
Falls Creek,	....	....	....	.06	....	....	....	.14	1.39	.30	.30	....	.40
Linesville,	....	....	....	.10	....	....	....	....	1.12	....	....	....	.90
Turnerville,	....	....	....	....	....	....	.33	....	1.17	....	.70	....	.34

DAILY PRECIPITATION

Station.	Day of Month.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Cloe,	.40	.30	....	....	....	....	.79	.30	....	....	.30	....	....	....
Creekside,	.20	....	....	....	....	....	.71	....	....	.40	.30	....	....	....
Cresson,	.05	.01	.01	....	....	.05	.70	.06	....	.04	.02	....	....	....
Eagles Mere,	....	....	....	....	....	....	1.01	.02	....	.10	.02	....	....	....
Falls Creek,	.06	....	....	....	....	....	.90	.05	....	.01	....	....	....	....
Ketner,	....	.03	.05	....	....	....	.49	.14	....	.05	.06	....	....	....
Linesville,	....	.05	....	....	....	....	....	.25	....	....	.10	....	....	....
Westford,	....	.05	....	....	....	....	.18	.33	.02	....	.06	....	....	....

MONTHLY PRECIPITATION

Station.	January.	February.	March.	April.
Cloe,	....	....	....	....
Creekside,	....	....	....	....
Cresson,	....	....	....	....
Eagles Mere,	....	....	....	....
Falls Creek,	....	....	....	....
Ketner,	....	....	....	....
Linesville,	6.87	....	8.91	2.29
Turnerville,	....	....	8.88	2.19
Westford,	....	....	....	....

*Interpolated from Westford.

—Continued.

FOR OCTOBER, 1913.

Day of Month.																	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
....	....	....	.36	....	.20	.55	....	....	.65	.64	....	.30	....	....	.20	.33	4.87
....	....	....	.20	.11	.13	.81	....	....	.41	.55	.19	....	.12	....	.10	.12	3.90

FOR NOVEMBER, 1913.

Day of Month.																	Total.
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
.11	.20	.40	....	....	....	....	....	....	....	....	....	.02	.08	.11	.06	.05	3.61
.21	....	....	....	....	....	.10	....	....	....	....	....	.02	.04	....	.40	....	3.36
.14	....	....	....	....	.14	.10	....	....	....	....	....	.10	....	....	....	.12	2.72
.08	....	....	....	....	.03	....	....	....	....	....	....	....	....	.06	.06	....	2.72

FOR DECEMBER, 1913.

Day of Month.																	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	*29	30	31	
....	....	....	....	....	....	....	....	.70	....	.10	....	....	....	....	....	....	2.89
....	....	....	....	....	....	....	....	.90	....	.14	.67	....	....	....	....	....	3.32
....	....	....	....	....	....	.02	....	.70	....	1.00	.60	....	....	....	....	....	3.27
....	....	....	....	....	....	....	....	.57	....	1.52	1.01	....	....	....	....	....	4.25
....	....	....	.01	....	....	.01	....	.30	....	.20	1.20	....	....	....	....	....	2.74
....	....	....	.06	....	....	.10	....	.80	....	....	.40	....	....	....	....	....	2.18
....	....	....	....	....	....	....	.33	....	.50	....	.68	.07	....	....	....	....	1.98
....	....	....	....	....	....	.20	.08	.04	.19	....	.57	.08	....	....	....	....	1.83

FOR THE YEAR 1913.

May.	June.	July.	August.	September.	October.	November.	December.
....	....	....	....	....	....	....	2.89
....	....	....	....	....	....	....	3.32
....	....	....	....	....	....	3.61	3.27
....	....	....	....	....	....	....	4.25
....	....	....	....	....	....	3.36	2.74
....	....	....	....	....	....	....	2.18
2.54	6.55	4.44	0.50	1.72	4.87	2.72	1.98
2.29	4.59	4.86	1.06	0.85	3.90	2.72	*1.99
....	....	....	....	....	....	....	1.83

TABLE NO. 15

DAILY PRECIPITATION

Station.	Day of Month.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Cloe,	....	.15	.60	.55	.05	....	....	....	....	.10	....	.07	.05	....
Creekside,	....	....	.39	.53	.13	....	....	....	....	....	....	.50	....	....
Cresson,	....	.01	1.45	1.09	.01	....	.01	....	....	.08	.02	.14	.08	....
Eagles Mere,	....	....	T.	.46	.28	....	....	....	....	....	....	....	....	....
Falls Creek,	....	....	.30	.90	....	....	....	....	....	.02	....	.02	....	....
Hadley,	....	....	....	1.40	.30	....	....	....	....	.30	....	.15	...	.15
Ketner,	....	....	.36	.80	....	....	....	....	.05	.09	.02	.20	.03	....
Kinsman,	....	....	.10	1.70	.16	....	....	....	....	....	.05	.08	.01	....
Linesville,	....	....	.07	2.38	T.	....	....	....	....	.02	....	.20	....	.20
Padanaram,	....	....	....	1.55	....	....	.28	....	....	....	....	....	....	....
Union City,	....	....	.55	2.09	.01	....	....	.03	....	.11	.08	.01	.02	....
Westford,	....	....	.02	1.85	.25	.01	....	....	....	.01	.01	.02	.12	....
Williamsfield,	....	....	....	1.95	.24	....	....	....	....	....	....	.08	.08	....

DAILY PRECIPITATION

Station.	Day of Month.										
	1	2	3	4	5	6	7	8	9	10	11
Cloe,	....	....	....	.26	.03	.08	....	....	....	....	....
Creekside,	....	....	....	.19	.09	.07	.02	....	....	.03	.08
Cresson,	....	....	.04	.03	.28	.14	.06	.08	....	.09	.01
Eagles Mere,	....	....	.02	....	....	.02	....	....	....	....	.02
Falls Creek,	....	....	....	.02	....	.01	....	....	....	.02	.02
Hadley,	.10	....	....	....	....	....	.35	....	....	.10	....
Ketner,	....	....	....	.20	....	.03	.04	.05	....	.03	....
Kinsman,	.13	....	....	.04	....	....	.29	....	....	.15	....
Linesville,	.20	....	....	....	....	....	.50	.10	....	.15	....
Padanaram,	.15	....	....	....	....	....	.52	....	....	....	....
Summit,	.17	....	....	....	....	....	.24	.20	....	.10	....
Transfer,	.16	....	....	.09	....	....	.13	....	....	.10	....
Turnerville,	.14	....	.06	....	....	....	.23	.02	.09	.15	....
Union City,	.01	....	....	.04	....	.07	.24	.10	....	.04	....
Westford,	.10	....	....	.03	....	....	.25	.10	T.	.20	.02
Williamsfield,	.15	....	....	....	....	....	.25	.03	....	.10	....

DAILY PRECIPITATION

Station.	Day of Month.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Cloe,	.04	....	....	....	....	.56	.14	.03	.03	....	....	....	....	....
Creekside,	.05	....	.04	....	....	.16	.12	.07	....	....	....	....	....	....
Cresson,	.07	.10	.01	....	.02	.26	.12	.08	.03	....	.05	....	.01	....
Eagles Mere,	.30	.40	....	....	....	.72	....	....	.05	....	....	....	....	....
Falls Creek,	.02	.02	....	....	....	.30	....	....	....	....	....	....	....	....
Hadley,	....	.35	T.	....	....	.30	....	....	.15	....	....	....	....	....
Ketner,	.05	.04	.03	.02	....	.15	.12	.01	.04	.06	....	....	....	....
Kinsman,	....	.20	.20	....	....	.17	....	....	....	....	....	....	....	....
Linesville,	....	.18	.25	....	....	.16	....	.03	.02	....	....	....	.02	....
Padanaram,	....	.30	....	....	....	.25	....	....	.08	....	....	....	....	....
Summit,	....	.16	.15	.02	....	.15	....	.10	.08	T.	....	....	....	....
Transfer,	....	....	.20	.10	....	.27	....	.10	....	....	....	....	....	....
Turnerville,	....	.30	.01	.01	....	.15	....	....	.03	....	....	....	....	....
Union City,	.07	.05	....	.03	....	.21	....	.08	.03	....	....	....	....	....
Westford,	T.	.34	.05	.02	....	.20	....	.01	....	....	....	....	T.	....
Williamsfield,	....	.19	....	....	....	.13	....	....	.01	....	....	....	....	....

—Continued.

FOR JANUARY, 1914.

Day of Month.																	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
.09	.03	....	....	....	.10	.08	.02	....	.07	....	.18	....	....	....	....	.50	2.64
.40	.30	.10	....	....	.08	.07	.02	....	.16	.14	.08	....	....	....	....	.93	3.83
.04	.02	.11	....	....	.09	.10	.03	....	.33	.01	.02	....	....	....	.01	.48	4.03
.43	.18	....	....	....	.14	....	....	....	....	.29	....	....	....	....	....	.96	2.74
....	....	....	....	....	....	.02	.06	....	....	....	.30	....	....	....	....	.75	2.39
....	....	....	....	....	....	....	.30	....	....	.20	.15	....	....	....	....	.30	3.25
.12	.02	.03	....	....	.03	.14	.02	....	.04	.08	.20	....	....	....	....	.71	2.94
....	....	....	....	....	.09	....	.15	....	....	.12	.27	....	....	....	....	.36	3.04
....	T.	T.	....	....	T.	T.	.10	....	....	T.	.24	....	....	....	.01	.30	3.52
....	....	....	.31	....	....	....	.40	....	....	.26	.30	....	....	....	....	.58	3.68
.08	....	.12	....	....	.01	.08	.04	....	.13	....	.15	....	....	....	....	.42	3.98
.02	....	.03	.05	....	.03	....	.30	....	....	.15	.20	....	....	....	....	.28	3.85
....	....	....	....	....	.03	....	.10	....	....	.12	.17	....	....	....	....	.30	3.07

FOR FEBRUARY, 1914.

Day of Month.																	Total.
12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
....	.06	.73	....	.14	.05	....	.65	.03	....	.05	.24	.07	....	....	....	....	2.34
....	.10	.44	....	.10	.02	.04	.72	....	....	.06	.17	.02	....	....	....	....	2.10
....	.14	.45	....	.17	.03	.15	.78	....	....	.23	.36	.02	....	....	....	....	3.01
....	....	1.98	....	.22	.17	....	.40	....	....	....	....	....	....	....	....	....	2.83
....	.02	.90	....	.30	....	....	.30	....	....	.20	.10	....	....	....	....	....	1.89
....	....	.30	....	....	....	....	.70	....	....	.10	.25	....	....	....	....	....	1.90
....	.05	.66	.03	.05	.07	....	.38	....	....	.09	.05	....	....	....	....	....	1.73
....	....	.33	....	.10	.15	.07	.33	...	....	.22	.54	....	....	....	....	....	2.35
....	....	.40	T.	....	....	.20	.30	....	.10	.22	.15	....	....	....	....	....	2.32
....	....	.50	....	....	.16	....	.36	...	....	....	.30	....	....	....	....	....	1.99
....	....	.35	....	.04	.05	.03	.35	...	....	.18	.20	....	....	....	....	....	1.91
....	....	.35	.05	.10	....	..	.40	...	....	.20	.17	....	....	....	....	....	1.75
....	....	.40	....	.04	.03	.05	.30	...	....	.20	.19	....	....	....	....	....	1.90
....	....	.22	....	.03	.09	....	.16	...	....	.12	.05	....	....	....	....	....	1.22
.02	....	.50	.05	.05	.05	.05	.25	...	.02	.10	.15	....	....	....	....	....	1.94
....	....	.51	....	.09	.04	.06	.39	...	....	.22	.28	....	....	....	....	....	2.12

FOR MARCH, 1914.

Day of Month.																	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
....	....	....	.27	.02	....	....	....	.03	....	....	....	.09	.59	....	.44	....	2.24
....	....	....	.41	....	....	....	....	.02	....	....	....	.10	.55	....	.30	....	1.82
....	....	.01	.50	.01	....	....	....	.03	....	....	....	.40	.42	.01	.71	....	2.84
....	....	....	.33	....	....	....	....	.03	....	....	.07	....	.78	....	....	....	2.73
....	....	....	.35	.02	....	....	....	.05	....	....	....	.20	.70	....	.44	....	2.10
....	....	....	....	....	.15	....	....	.15	.15	....	T.	....	1.30	....	.30	....	2.85
....	....	....	.43	.05	....	....	....	.03	....	....	....	.24	.65	....	.22	....	2.19
....	....	....	.21	.05	....	....	....	....	....	....	.11	....	1.90	....	.29	.03	3.19
....	....	....	.27	.02	.01	....	....	.10	....	....	.08	....	2.00	....	.21	.04	3.39
....	....	....	.22	....	.04	....	....	.04	....	....	.10	....	1.96	....	.20	....	3.19
....	....	....	.25	.04	....	....	....	.04	....	....	.10	.02	1.80	....	.25	T.	3.16
....	....	....	.20	T.	T.	....	....	....	....	....	.08	....	1.23	....	.33	....	2.51
....	....	....	.17	.01	....	....	....	.03	....	....	.01	....	2.03	....	.37	....	3.12
....	....	....	.27	.01	.01	....	....	.01	....	....	.14	.40	1.18	....	.28	....	2.72
....	....	....	.27	.02	....	....	....	.15	....	....	....	.10	1.48	....	.21	.05	2.90
....	....	....	.30	....	....	....	....	.04	....	....	.19	.04	1.92	....	.29	.04	3.15

TABLE NO. 15

DAILY PRECIPITATION

Station.	Day of Month.												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Cloe,	.10	.25	.09	....	.04	....	.35	.54	....	.01	....	.16	....
Creekside,	.17	.28	.05	....	.05	....	.17	.48	....	....	....	.15	....
Cresson,	.25	.16	.11	....	.05	....	.01	.52	.01	....	.13	....	....
Eagles Mere,	.38	....	....	....	.12	.05	....	1.88	....	....	....	....	....
Falls Creek,	.10	.40	....	....	....	....	.60	.60	....	....	.20	....	....
Hadley,	....	.47	....	....	....	....	.57	1.01	T.	.22	.38	....	....
Ketner,	.12	.34	.09	.03	.06	....	.60	.67	....	....	.17	.13	....
Kinsman,	.09	.48	.11	....	....	....	.38	1.10	....	....	.01	.39	....
Linesville,	.06	.71	.13	....	.10	....	.38	.89	....	....	.04	.33	....
Padanaram,	....	.85	.06	....	....	....	.48	.50	.30	....	....	.55	....
Summit,	.09	.67	.21	....	.08	....	.28	1.01	T.	....	....	.44	....
Transfer,	....	.48	.23	....	....	....	.44	1.04	....	....	....	.23	....
Turnerville,	.09	.54	.18	.03	.07	....	.34	1.04	.04	....	....	.45	....
Union City,	.10	.66	.21	....	.05	.02	.52	.35	.02	....	.37	....	....
Westford,	.06	.55	.12	T.	.08	....	.30	.98	T.	....	.07	.30	....
Williamsfield,	.06	.62	.10	....	.04	....	.28	.94	....	....	.07	.31	....

DAILY PRECIPITATION

Station.	Day of Month.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Cloe,	....	....	....	....	1.10	.04	....	.42	.04	....	.14	.71	.65	....
Creekside,	....	....	....	....	1.80	.30	....	.30	.80	....	.30	.44	.78	....
Cresson,	....	....	....	.42	1.30	.02	....	.30	....	....	.04	.85	.02	....
Eagles Mere,	....	....	....	.03	....	1.26	....	.77	.26	....	.49	.64	.70	....
Falls Creek,	....	....	....	....	1.03	....	....	.30	....	....	1.02	1.10	1.04	....
Hadley,	....	....	T.	.05	.65	.40	....	T.	.35	T.	.11	1.90	.35	T.
Ketner,	....	....	....	.03	1.57	.15	.01	.22	.38	....	.56	1.18	.72	....
Kinsman,	....	....	....	....	.74	.42	....	....	.31	....	T.	2.12	.66	....
Linesville,	.01	....	....	....	.78	.33	.09	....	.39	....	.10	1.68	.79	.01
Padanaram,	....	....	....	....	1.08	.20	....	....	.40	....	.10	2.04	.74	.06
Summit,	....	....	....	....	.74	.54	.03	....	.43	....	.02	2.07	.77	....
Transfer,	....	....	....	....	.50	.32	....	....	.40	....	.25	1.91	.39	....
Turnerville,	....	....	....	....	.68	.54	....	.01	.26	....	.07	1.95	.65	.01
Union City,	....	....	....	.11	1.16	.20	....	.26	.07	....	.66	1.74	.04	....
Westford,	....	....	....	....	.68	.54	....	....	.33	....	.04	2.09	.57	T.
Williamsfield,	....	....	....	....	.94	.49	....	....	.20	....	.12	1.85	.64	....

DAILY PRECIPITATION

Station.	Day of Month.												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Cloe,	.08	....	....	.82	.04	....	....	....	....	....	....	....	....
Creekside,	....	....	....	1.51	.70	....	....	.31	....	....	....	....	....
Cresson,	....	....	....	.83	....	....	....	....	.08	.06	....	....	...
Eagles Mere,	....	....	....	1.09	....	....	.19	.10	.53	....	....	....	....
Falls Creek,	....	....	....	.90	....	....	....	....	....	....	....	....	....
Hadley,	.07	....	....	.42	.80	....	....	....	....	....	....	....	....
Ketner,	....	....	....	.80	.04	....	.02	....	....	....	....	....	....
Kinsman,	.12	....	....	.58	.89	....	....	....	....	....	....	....	....
Linesville,	.02	....	....	.38	.34	....	....	....	....	....	....	....	....
Padanaram,	....	....	....	.30	.28	....	....	....	....	....	....	....	....
Summit,	....	....	....	.60	.45	....	....	....	....	....	....	....	....
Transfer,	....	....	....	.50	.75	....	....	....	....	....	....	....	....
Turnerville,	....	.06	....	....	.52	.54	....	....	....	....	....	....	....
Union City,	....	....	....	.95	....	....	....	....	....	....	....	....	....
Westford,	.04	....	....	.69	.47	....	....	....	....	....	....	....	....
Williamsfield,	.08	....	....	.58	.63	....	....	....	....	....	....	....	....

—Continued.

FOR APRIL, 1914.

Day of Month.																	Total.
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
....	.58	.21	.02	....	.15	.29	....	.12	....	....	.62	....	....	....	.03	....	3.56
....	1.10	.14	.40	....	.17	.27	....	....	.60	....	.28	.37	....	....	.80	....	5.48
.02	1.88	.13	....	.07	.36	.43	....	.05	....	....	1.18	.14	....	....	.04	.01	5.55
....	....	1.12	....	....	....	2.33	.17	....	....	....	....	.75	....	....	....	....	6.80
....	.40	.30	....	....	.10	.40	....	.10	....	....	.90	.46	....	....	.10	....	4.66
....	....	.55	.15	....	.15	.04	.02	T.	.02	T.	.60	1.00	T.	.08	.02	.01	5.29
....	.48	.25	....	....	.23	.16	.03	.17	....	....	.30	.70	....	....	.09	.01	4.63
....	T.	.61	.10	....	.04	....	....	....	....	.10	.56	1.14	....	....	T.	....	5.11
....	....	.59	.04	....	.03	....	.02	....	....	....	.52	.93	....	....	.06	.04	4.87
....	....	.60	....	.14	....	....	.10	....	....	....	.56	.77	....	.08	....	....	4.99
....	....	.59	.06	....	.05	....	.08	.06	....	....	.55	.90	....	....	.03	.07	5.12
....	....	.59	....	....	.08	....	....	....	....	....	.93	1.10	....	....	....	....	5.12
....	....	.64	.12	....	.04	....	.02	....	....	....	.53	1.13	.01	....	.08	.03	5.33
....	.14	.96	.01	....	.50	.30	.30	1.00	....	....	.95	.51	....	....	.47	.02	7.46
....	.01	.64	.04	....	.08	T.	.01	....	....	....	.43	1.20	....	T.	.04	.05	4.86
....	....	.66	.12	....	.04	....	....	....	....	....	.70	1.00	....	....	....	.07	5.01

FOR MAY, 1914.

Day of Month.																	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
....	....	....	....	....	....	....	....	....	....	....	....	....	.08	.05	.43	....	3.66
....	....	....	....	....	....	....	....	....	....	....	....	.13	.41	....	....	....	5.26
....	....	....	....	....	....	....	.02	....	....	....	....	.35	.10	.03	....	....	3.45
....	....	....	....	....	....	....	....	....	....	....	....	.40	....	.04	....	....	4.59
....	....	....	....	....	....	....	....	....	....	....	....	.90	....	....	.40	....	5.79
....	....	....	....	....	....	T.	....	....	....	....	....	.10	T.	....	.02	....	3.93
....	....	....	....	....	....	....	.06	....	.04	....	.05	1.22	....	.85	.10	....	7.14
....	....	....	....	....	....	....	....	T.	....	....	....	....	....	T.	....	....	4.25
....	....	....	....	....	....	....	....	.06	....	....	....	....	....	....	.30	....	4.54
....	....	....	....	....	....	....	....	.06	....	....	....	....	.14	.10	....	....	4.92
....	....	....	....	....	....	....	....	.07	....	....	....	....	.08	....	.26	....	5.01
....	....	....	....	....	....	....	....	T.	....	....	....	....	.09	....	....	....	3.86
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.05	....	4.22
....	....	....	....	....	....	....	.02	....	....	....	....	.30	....	....	.31	....	4.87
....	....	....	....	....	....	....	....	.02	....	....	....	....	.06	....	.07	....	4.40
....	....	....	....	....	....	....	....	....	....	....	....	....	.12	....	.03	....	4.39

FOR JUNE, 1914.

Day of Month.																	Total.
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
....	....	....	....	....	.10	....	....	1.44	.10	....	1.06	....	.26	.79	....	....	4.64
....	....	....	....	....	.20	....	....	.92	....	....	.95	....	....	1.20	....	....	5.79
....	....	....	....	....	.09	....	.35	.50	....	.70	....	....	....	1.49	....	....	4.10
	.04	....	....	....	....	....	....	....	.84	.09	....	....	.28	.77	.15	.37	4.45
....	....	....	....	....	.20	....	.80	.90	....	.80	....	.70	....	.80	....	....	5.10
....	.01	....	....	....	.14	.20	....	1.65	....	....	....	....	....	.27	.16	....	3.72
....	....	....	....	....	.14	.01	.14	.54	.32	.14	....	....	....	.36	....	....	2.51
....	....	....	....	....	.06	.29	....	1.13	....	....	....	....	T.	.18	T.	.11	3.88
....	....	....	....	....	.12	.34	....	.88	....	....	.09	....	....	.64	.12	.02	2.95
....	....	....	....	....	.34	.25	....	.88	....	.16	....	....	....	.11	.10	.16	2.58
....	....	....	....	....	.07	.34	....	1.57	....	....	.01	....	.02	T.	.22	.09	3.37
....	....	....	....	....	....	.22	....	.88	....	.15	....	....	....	.43	....	.08	3.01
....	....	....	....	....	.15	.51	....	1.70	.03	....	.07	....	....	.21	.08	.07	3.94
....	....	....	....	....	.39	.01	.17	.01	.03	.24	....	....	....	....	.12	.05	1.97
....	T.	....	....	....	.09	.34	....	1.19	T.	.07	....	....	....	.33	.10	.05	3.37
....	....	....	....	....	.05	.35	....	1.59	....	....	.03	....	....	.48	.15	....	2.94

TABLE NO. 15

DAILY PRECIPITATION

Station.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Day of Month.													
Cloe,	.16	.11	....	....	.34	.02	.04	....	....	....	....	....	.87	.33
Creekside,	.28	.23	....	....	....	....	.30	....	....	....	....	....	1.28	.30
Cresson,	.20	.13	....	....	....	.11	....	....	....	....	....	.30	1.16	.08
Eagles Mere,	....	....	....	....	.60	....	.15	....	.05	.88	.09	....	.67	.55
Falls Creek,	.20	....	....	....	....	....	....	....	....	....	.10	....	.20	.20
Hadley,	.08	....	....	....	....	....	....	....	....	....	....	....	.45	1.14
Ketner,	.03	.09	....	....	.51	....	.04	....	.08	....	.06	....	.20	.15
Kinsman,	....	.06	....	....	....	....	....	....	....	....	....	....	.63	2.31
Linesville,	....	....	....	....	....	....	....	....	....	....	....	....	.59	1.49
Padanaram,	....	.17	....	....	....	....	....	....	....	....	....	....	.62	1.10
Summit,	....	.01	....	....	....	....	....	....	....	....	....	.50	1.13	.63
Transfer,	....	.12	....	....	....	....	....	....	....	....	....	....	.12	1.63
Turnerville,	.04	....	....	....	....	....	....	....	....	....	....	....	.82	1.67
Union City,	.02	....	....	....	....	....	....	....	....	....	....	....	.87	.20
Westford,	....	.04	....	....	....	....	....	....	....	....	....	....	.65	1.02
Williamsfield,	....	.05	....	....	....	....	....	....	....	....	....	....	.57	.86

DAILY PRECIPITATION

Station.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Day of Month.													
Claridge,	....	....	.33	....	....	....	.84	....	.70	.86	1.03	.80	....	....
Cloe,	....	.08	....	....	....	.51	.07	.25	....	.28	.35	.85	....	....
Creekside,	....	.27	.17	....	....	....	....	.60	....	....	.89	.39	....	.60
Cresson,	.07	.05	.04	....	....	.02	....	....	....	.37	1.04	.14	....	....
Eagles Mere,	....	.03	....	....	....	....	.91	....	....	.42	....	....	....	....
Falls Creek,	....	.40	....	....	....	....	.50	....	....	.20	.20	.80	....	.10
Hadley,	....	....	....	....	....	....	....	.53	....	.06	.90	.33	....	....
Harrisburg,	.02	.30	....	....	....	....	....	....	....	.86	.70	.07	....	....
Ketner,	.07	.49	....	....	....	.03	....	.07	....	.53	.39	.02	....	.05
Kinsman,	....	T.	....	....	....	.36	....	....	.21	.96	1.11	.28	....	....
Linesville,	....	....	....	....	....	....	....	....	....	.09	1.24	.13	.01	....
Murrysville,	....	....	.28	....	....	....	....	.13	.42	.14	1.04	.12	....	.07
Padanaram,	....	....	....	....	....	....	....	....	....	.22	1.28	.17	....	....
Summit,	....	....	....	....	....	....	....	.04	....	.17	1.08	.10	....	....
Trafford,	....	....	.65	....	....	....	.02	.01	.07	.80	.37	.75	.09	....
Transfer,	....	....	.11	....	....	....	....	1.07	....	.05	1.07	.15	....	....
Turnerville,	....	....	....	....	....	.10	....	.06	....	.41	1.00	.17	....	....
Union City,	....	.06	....	....	....	....	....	....	....	.04	1.07	.01	....	....
Westford,	T.	....	....	....	....	.11	....	....	....	.63	.82	.28	....	....
Williamsfield,	....	....	....	....	....	....	....	....	.18	.79	1.06	.25	....	....

--Continued.

FOR JULY, 1914.

Day of Month.																	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
.06	....	.41	.04	....	....	....	....	.10	.09	.02	....	.04	.21	....	....	....	2.84
.18	.70	.14	.13	....	....	....	....	....	.10	.70	....	....	.35	....	....	....	4.69
.08	.26	.80	.13	....	....	....	....	.02	.02	.02	....	....	.24	.02	.04	....	3.61
.20	....	....	....	....	....	....	....	.09	.70	....	....	.85	.76	....	....	....	5.09
.10	....	.70	....	....	....	....	....	....	....	....	....	....	.10	....	....	....	1.60
....	.36	....	.13	....	....	....	....	....	.25	.04	....	....	.01	....	....	....	2.46
....	....	.11	.04	....	....	....	....	.06	....	.03	....	....	.16	....	....	....	1.56
.70	T.	2.00	....	....	....	....	....	....	.34	.08	....	....	....	....	....	....	6.14
.45	.51	....	....	....	.03	....	....	....	.04	.01	....	....	.02	....	....	....	3.14
1.18	.28	.60	....	....	....	....	....	....	.64	....	....	....	.05	....	....	....	4.64
....	....	.12	....	....	....	....	....	....	.02	.03	....	....	....	....	....	....	2.44
.02	....	.79	....	....	....	....	....	.19	....	.10	....	....	....	....	....	....	2.97
.82	....	.33	....	....	....	....	....	....	.36	.04	....	....	.02	....	....	....	3.60
.02	....	.22	....	....	....	....	....	.11	....	....	....	....	.03	....	....	....	1.47
.41	....	.37	....	....	....	....	....	....	.08	.03	....	....	.04	....	....	....	2.64
1.97	....	.17	....	....	....	....	....	....	.31	.03	....	....	.05	....	....	....	4.01

FOR AUGUST, 1914.

Day of Month.																	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
....	....	....	....	....	....	.90	....	....	.14	....	....	....	.21	1.45	....	....	6.26
....	....	.03	....	....	.05	.29	....	....	.25	....	....	....	.20	.49	....	....	3.20
....	....	....	....	....	....	.61	....	....	.32	....	....	....	.60	.84	....	....	5.29
....	....	....	....	....	....	.17	....	....	....	....	....	....	.12	.45	....	....	2.47
.23	....	.12	....	....	1.01	.08	....	....	.10	....	....	....	.63	.38	....	....	3.92
....	....	.10	....	.30	.10	.30	....	....	1.10	....	....	....	.10	1.00	....	....	4.70
....	.30	....	....	....	....	1.24	....	....	1.90	....	...	....	....	.40	.05	....	5.71
....	....	....	....	....	2.29	.19	....	....	T.	T.	...	....	.57	.27	....	....	5.27
....	....	.13	.04	....	.03	.13	....	....	1.21	....	....	....	.07	.75	....	.28	4.29
....	....	.64	....	....	.03	.42	....	....	1.18	T.	....	....	....	.34	....	....	5.53
....	....	.38	.01	....	....	.13	....	....	1.10	....	....	....	....	.50	.33	....	3.92
....	....	....	....	....	....	.72	....	....	.21	....	....	....	.15	1.03	....	....	4.31
....	....	.31	....	....	.08	.22	....	....	1.30	....	....	....	....	.80	....	....	4.38
....	....	.29	....	....	....	.13	....	....	1.30	....	....	....	....	.27	.28	....	3.61
....	....	....	....	....	....	.10	.44	....	.90	....	....	....	....	1.15	....	....	5.35
....	....	.30	....	....	....	.99	....	....	1.27	....	....	....	....	.47	....	....	5.48
....	....	.43	.05	....	.42	1.86	....	....	1.39	....	....	....	....	.35	.08	....	6.27
....	....	.26	.08	....	.45	.02	....	....	.70	....	....	....	....	.63	....	.15	3.47
....	....	.42	....	T.	.04	.22	....	....	1.23	....	....	....	....	.52	.20	....	4.45
....	....	.47	....	....	....	.58	....	....	1.18	....	....	....	....	.72	.25	....	5.48

TABLE NO. 15

DAILY PRECIPITATION

Station.	Day of Month.												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Claridge,	....	.20	.43	....	....	....	....	....	....	....	.02	....	....
Cloe,	....	.11	.19	....	....	....	....	....	....	....	.01	....	....
Creekside,	....	.12	.12	....	....	....	....	....	....	....	.11	....	....
Cresson,	....	....	.30	....	....	.39	....	....	....	....	.28	....	....
Eagles Mere,	....	....	....	....	....	.16	....	.04	....	....	....	....	....
Falls Creek,	....	.70	.20	....	....	....	....	....	....	....	.10	....	....
Hadley,	....	.27	....	.01	....	....	....	.05	....	....	....	.12	....
Harrisburg,	....	.17	.17	....	....	T.	....	.03	....	....	....	.05	....
Ketner,	....	1.73	....	....	....	....	.11	....	....	....	....	....	....
Kinsman,	....	.57	....	.08	....	.07	....	....	T.	....	....	.04	....
Linesville,	....	.42	.21	.10	....	.10	....	.04	....	....	.05	....	....
Murrysville,	....	.10	....	....	....	.05	....	....	....	....	.05	....	....
Padanaram,	....	.30	.04	.08	....	....	.08	....	....	....	....	.08	....
Summit,	1.20	.96	.04	....	....	.17	....	.08	....	....	....	.04	....
Trafford,	....	.17	....	....	....	....	.01	....	....	....	....	.02	....
Transfer,	....	.21	....	....	.09	....	....	....	....	....	....	.19	....
Turnerville,	....	.28	.05	.07	....	....	.13	.08	....	....	....	....	....
Union City,	.06	.56	....	.38	....	....	....	....	....	....	.02	....	....
Westford,	.03	.27	.06	.09	....	.08	.05	.03	....	....	....	.06	....
Williamsfield,	.25	.20	....	.11	....	.05	....	.05	....	....	....	.05	....

DAILY PRECIPITATION

Station.	Day of Month.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Claridge,	....	....	....	....	....	....	.03	.09	.02	.10	.15	....	.20	.55
Cloe,	....	....	....	....	....	....	.01	.01	.15	.02	.19	....	.13	.49
Creekside,	....	....	....	....	....	....	....	.25	.10	....	.18	....	.70	.54
Cresson,	....	....	....	....	....	....	.10	.20	.10	.02	1.00	....	.28	.30
Eagles Mere,	....	....	....	....	....	....	1.28	....	....	.22	....	....	....	.25
Falls Creek,	....	....	....	....	....	....	....	....	.10	....	.30	....	.10	.50
Hadley,	....	....	....	....	....	....	....	.05	.04	.86	.12	....	....	.70
Harrisburg,	....	....	....	....	....	....	.36	....	....	....	....	....	....	.08
Ketner,	....	....	....	....	....	....	.17	....	.09	.31	.19	....	.10	.42
Kinsman,	....	....	....	....	....	....	....	....	....	.85	.38	....	....	.59
Linesville,	....	....	....	....	....	....	....	....	....	.52	.23	....	....	.92
Murrysville,	....	....	....	....	....	....	.18	.33	....	.25	.20	....	.18	.68
Padanaram,	....	....	....	....	....	....	.16	....	.70	....	....	....	....	.60
Summit,	....	....	....	....	....	....	....	....	....	.48	....	....	....	...
Trafford,	....	....	....	....	....	.10	.17	....	.41	.10	.38	....	....	.80
Transfer,	....	....	....	....	....	....	....	....	....	.75	.24	....	....	.80
Turnerville,	....	....	....	....	....	....	....	....	....	.70	.33	....	.46	.06
Union City,	....	....	....	....	....	....	....	....	.38	.65	....	....	....	.42
Westford,	.01	....	....	....	....	....	....	.03	....	.49	.26	....	....	.51
Williamsfield,	....	....	....	....	....	....	....	....	....	.56	.20	....	....	.67

—Continued.

FOR SEPTEMBER, 1914.

Day of Month.																	Total.
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
....	....	....	....	....	....	....	....	....	....	.06	.50	....	....	....	....	....	1.21
....	....	....	....	....	....	....	....	....	.09	.18	.02	....	....	....	....	....	0.60
....	....	....	....	....	....	....	....	....	....	.25	....	....	....	....	....	....	0.60
....	....	....	....	....	....	....	....	....	....	.03	....	....	....	.02	....	....	1.08
....	....	....	....	....	....	....	....	....	.46	.24	....	....	....	....	....	....	0.90
....	....	....	....	....	....	....	....	....	.02	.22	....	....	....	....	....	....	1.24
....	....	....	....	....	....	....	....	....	....	.25	.08	....	....	.06	....	....	0.79
....	....	....	....	....	....	....	....	....	.13	.20	....	....	T.	....	....	....	0.75
....	....	....	....	....	....	....	....	....	.14	.24	....	....	....	....	....	....	2.22
....	....	....	....	....	....	....	....	....	....	.38	.04	....	....	....	....	....	1.18
....	....	....	....	....	....	....	....	....	....	.32	.01	....	....	....	....	....	1.25
....	....	....	....	....	....	....	....	....	....	.38	....	....	....	....	....	....	0.58
....	....	....	....	....	....	....	....	....	.08	.28	....	....	....	.03	....	....	0.97
....	....	....	....	....	....	....	....	....	....	.32	.15	....	....	....	....	....	2.98
....	....	....	....	....	....	....	....	....	....	.21	.23	....	....	....	....	....	0.64
....	....	....	....	....	....	....	....	....	....	.19	....	....	....	....	....	....	0.68
....	....	....	....	....	....	....	....	....	....	.30	.01	....	....	....	....	....	0.87
....	....	....	....	....	....	....	....	....	....	.23	.11	....	.09	....	....	....	1.45
....	....	....	....	....	....	....	....	....	.01	.31	.01	....	....	....	.04	....	0.99
....	....	....	....	....	....	....	....	....	....	.28	....	....	....	....	....	....	0.99

FOR OCTOBER, 1914.

Day of Month.																	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
....	.43	.09	.03	....	....	....	....	....	....	.15	.03	.02	....	.04	.14	....	2.07
....	.32	....	.07	....	....	....	....	....	....	.08	.04	....	....	.08	.12	....	1.66
....	.45	....	.15	.18	....	....	....	....	....	.30	.20	....	....	.10	.20	....	3.77
.13	.30	....	....	....	....	....	....	....	....	.12	.12	....	....	.13	.08	....	2.93
.22	.31	.93	.09	....	....	....	....	....	....	....	.02	....	....	.20	.06	....	3.58
....	.70	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.70
.10	.40	.44	.10	.20	....	....	....	....	....	....	....	.10	....	....	.42	....	3.53
.04	.88	....	.15	....	....	....	....	....	....	.03	....	....	....	....	.05	....	1.54
....	.57	.08	.35	....	....	....	....	....	....	.04	.02	....	....	.06	.19	....	2.59
....	.44	.49	....	....	....	....	....	....	....	....	....	.04	.10	....	.28	....	3.17
.03	.45	.46	.22	.14	....	....	....	....	....	....	....	.03	....	....	.47	....	3.47
.04	.45	.12	.08	....	....	....	....	....	....	.19	.02	....	....	....	....	....	2.72
.40	.41	.45	.15	.09	....	....	....	....	....	....	....	.17	.28	....	....	....	3.41
.60	.40	.41	.45	.20	....	....	....	....	....	....	....	.20	.27	....	.51	....	3.47
.07	.42	....	.12	...	.02	....	....	....	....	.15	....	.03	....	....	.13	....	2.90
.10	....	....	.03	.19	....	....	....	....	....	....	T.	....	....	.05	.30	....	2.46
....	.47	....	.64	.13	....	....	....	....	....	....	....	.09	.20	....	.31	....	3.44
.02	.29	....	.62	.07	....	....	....	....	....	....	.17	.02	....	.06	.38	....	3.08
.03	.48	.03	.20	.13	T.	....	....	....	....	....	....	.09	.13	T.	.34	T.	2.73
....	.40	.11	.21	.10	....	....	....	....	....	....	....	....	.10	....	.35	....	2.70

TABLE NO. 15

DAILY PRECIPITATION

Station.	Day of Month.												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Claridge,	....	....	....	....	....	....	....	.35	....	....	....	....	....
Cloe,	....	....	....	....	....	.05	....	.20	.12	....	....	....	.03
Creekside,	....	....	....	....	....	....	....	.31	....	....	....	....	....
Cresson,	....	....	....	....	.02	....	....	.08	....	....	....	....	.01
Eagles Mere,	....	....	....	....	....	T.	....	.34	....	....	....	....	....
Falls Creek,	....	....	.01	....	....	.02	....	.49	....	....	....	....	....
Hadley,	....	....	.05	....	....	....	.10	.28	....	....	....	....	....
Harrisburg,	....	....	....	....	T.	T.	....	.17	....	....	T.	....	....
Ketner,	....	....	.14	....	.07	.08	....	.50	....	....	.10	....	.04
Kinsman,	....	....	....	.05	....	....	....	.24	.58	....	....	.08	....
Linesville,	....	....	....	.26	....	.12	....	.30	.50	....	....	....	....
Murrysville,	....	....	....	....	....	....	....	.16	....	....	....	....	....
Padanaram,	....	....	....	.18	....	.42	....	.36	.48	....	....	....	....
Summit,	....	....	....	.28	....	.13	....	.43	.44	....	....	....	....
Trafford,	....	....	....	....	....	....	....	.03	.28	....	....	....	....
Transfer,	....	....	....	.10	.08	....	....	.50	.30	....	T.	....	....
Turnerville,	....	....	....	....	....	....	....	.26	.50	....	....	....	....
Union City,	....	.09	.12	....	.12	.12	....	.65	....	....	.06	.04	.04
Westford,	T.	....	....	.25	T.	.06	.03	.29	.56	....	.02	.04	....
Williamsfield,	....	....	....	.15	....	.10	....	.45	.36	....	....	....	....

DAILY PRECIPITATION

Station.	Day of Month.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Claridge,	.40	....	.10	....	.35	.20	.72	.42	.10	....	....	.20	.37	.06
Cloe,	.41	.16	.04	....	....	.02	.31	.30	.17	.08	....	....	.17	.32
Creekside,	.59	.30	....	....	....	....	.38	.44	.23	.06	....	....	....	.35
Cresson,	.34	.07	.08	....	....	.43	.48	.24	.09	.01	.02	.02	.25	.18
Eagles Mere,	....	.19	....	....	....	....	1.89	.24	....	....	....	....	1.20	....
Falls Creek,	.41	....	....	....	....	....	.40	.30	.05	....	....	....	.30	.20
Hadley,	.55	.42	....	....	....	.02	.12	.58	.10	.13	T.	....	....	.23
Harrisburg,	....	.05	.02	....	T.	.12	1.76	.38	....	.05	T.	....	.64	T.
Ketner,	.38	.27	....	....	....	....	.14	.05	.27	.09	.02	....	.16	.40
Kinsman,	.66	.48	.08	....	....	....	.13	.63	.31	.04	....	.10	....	.35
Linesville,	.63	.52	.01	....	....	....	.21	.65	.40	.10	....	....	....	.31
Murrysville,	.29	.12	....	.04	....	.50	.70	.40	.10	....	.10	....	.23	.10
*Pennline,	.55	.38	....	....	....	.04	.16	.70	.30	.08	.05	....	....	.23
Summit,	.55	.20	T.	....	....	....	.24	.40	.40	.06	.06	T.	....	.32
Trafford,	.27	.22	....	.02	.26	.37	.27	.80	.08	.15	.03	.02	....	.47
Transfer,	....	.61	.66	T.	....	.60	T.	.88	.60	T.	T.	T.	....	.20
Turnerville,	.70	.42	.05	....	....	.02	.13	.79	.29	.11	.05	.02	T.	.40
Union City,	.70	.42	.02	....	....	.05	.25	.05	.12	.06	.03	....	.10	.18
Westford,	.40	.52	.02	....	....	....	.18	.87	.40	.25	.10	.05	.05	.30
Williamsfield,	.55	.28	....	....	....	....	.08	.72	.50	.81	....	....	....	.42

*Prior to this date this station was located at Padanaram, Ohio.

—Continued.

FOR NOVEMBER, 1914.

Day of Month.																	Total.
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
....	.37	.20	....	....	....	.05	....	....	....	....	....	....	....	....	....	.35	1.32
....	.57	.16	....	....	....	....	....	....	....	....	....	....	....	....	....	.30	1.43
....	.65	.25	....	....	....	....	....	....	....	....	....	....	....	....	....	.35	1.56
.34	.74	.04	....	....	.01	.02	.02	....	.03	....	....	....	....	....	....	.44	1.75
....	.96	....	....	....	....	....	T.	T.	....	....	....	....	....	....	....	.09	1.39
....	.71	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.46	1.69
....	.25	.35	....	....	....	T.	....	....	....	....	....	....	....	....	....	.25	1.28
....	1.57	.05	....	....	....	....	....	....	T.	....	....	....	....	....	....	.05	1.84
....	.64	.15	.04	....	....	....	.08	.07	.02	....	....	....	....	....	....	.23	2.10
....	.30	.35	....	T.	....	T.	T.	....	....	....	....	....	....	....	....	.29	1.84
....	.31	.34	.10	.03	....	....	....	....	....	....	....	....	....	....	....	.22	2.18
....	.25	.10	....	....	....	.02	....	....	....	....	....	....	....	....	....	.40	0.98
....	.19	.18	....	....	....	....	....	....	....	....	....	....	....	....	....	.42	2.28
.04	.20	.28	T.	.14	....	T.	.11	T.	T.	....	....	....	....	....	....	.17	2.22
.02	.11	.28	....	....	....	.05	.04	....	....	....	....	....	....	....	....	.23	1.08
T.	....	....	....	....	....	T.	T.	....	T.	....	....	....	....	....	....	.40	1.38
.04	.19	.35	.01	.01	....	....	....	.02	....	....	....	....	....	....	....	.32	1.70
....	.08	.22	.13	....	....	....	.08	.03	.17	....	....	....	....	....	....	.39	2.34
T.	.25	.29	.05	.03	....	T.	T.	....	T.	....	T.	....	....	....	....	.43	2.30
....	.38	.33	.07	.06	....	....	....	....	....	....	....	....	....	....	....	.37	2.24

FOR DECEMBER, 1914.

Day of Month.																	Total.
15	*16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
....	....	....	....	.50	....	.80	.05	.15	....	....	....	....	....	.34	.02	....	4.78
....	....	....	....	.82	....	.96	....	.03	.07	....	....	....	....	.34	.05	....	3.75
....	....	....	....	.32	....	.99	....	....	.50	....	....	....	....	.28	....	....	4.44
....	....	....	....	.40	.70	.24	....	.02	.07	....	....	....	....	.40	.04	.03	4.06
....	....	....	....	.58	....	.75	....	....	.22	....	....	....	....	.23	....	....	5.30
....	....	....	....	.15	....	.54	....	....	.08	....	....	....	....	.33	.11	....	2.92
....	....	....	....	.07	.40	.64	....	.05	.10	.05	....	....	....	....	.12	....	3.58
....	....	....	....	.30	....	.80	....	....	.13	....	....	....	....	.36	....	....	4.61
....	....	....	....	.41	.03	.81	....	.03	.16	.02	....	....	....	.30	.23	.03	3.80
....	....	....	....	....	.30	.56	....	.12	....	.10	....	....	....	....	.14	....	4.00
....	....	....	....	.10	.10	.65	.06	.15	.10	.20	....	....	....	....	.15	.02	4.35
....	....	....	....	.25	....	.21	....	....	.05	....	....	....	....	.19	....	.05	3.33
T.	....	....	....	.10	.08	.55	T.	.15	.08	.22	....	....	....	....	.14	T.	3.81
.10	....	....	....	.09	.10	.50	.10	.20	.10	.20	....	....	....	....	....	.12	3.74
.03	....	....	....	.53	.46	.04	....	....	....	.09	....	....	....	....	.23	.03	4.37
....	....	....	....	T.	.42	.58	....	....	T.	....	....	....	....	....	.15	....	4.70
T.	T.	T.	T.	.10	.23	.50	....	.05	.02	.08	....	....	....	....	.12	.01	4.09
....	....	....	....	.26	....	.51	.01	.04	.05	....	....	....	....	.13	.06	.04	3.08
.02	....	....	....	.07	.13	.53	.02	.10	.05	.07	T.	....	....	....	.13	T.	4.26
....	....	....	....	....	.24	.50	....	....	....	.06	....	....	....	....	.12	....	4.28

TABLE NO. 15

MONTHLY AND ANNUAL PRECIP

Station.	January.	February.	March.	April.	May.
Claridge,	....	....	....	....	....
Cloe,	2.64	2.34	2.24	3.56	3.65
Creekside,	3.83	2.10	1.82	5.48	5.26
Cresson,	4.06	3.01	2.84	5.55	3.45
Eagles Mere,	2.74	2.83	2.73	6.30	4.59
Falls Creek,	2.39	1.89	2.10	4.66	5.79
Hadley,	3.25	1.90	2.85	5.29	3.98
Harrisburg,	....	....	....	....	....
Ketner,	2.94	1.73	2.19	4.63	7.14
Kinsman,	3.04	2.35	3.19	5.11	4.25
Linesville,	3.52	2.32	3.39	4.87	4.54
Murrysville,	....	....	....	....	....
†Padanaram,	3.68	1.99	3.19	4.99	4.93
Summit,	*3.72	1.91	3.16	5.12	5.01
Trafford,	....	....	....	....	....
Transfer,	*3.27	1.75	3.51	5.13	3.88
Turnerville,	*3.52	1.90	3.12	5.33	4.22
Union City,	3.93	1.22	2.72	7.46	4.87
Westford,	3.35	1.94	2.90	4.86	4.40
Williamsfield,	3.07	2.12	3.15	5.01	4.39

*Interpolated. †Station changed to Pennline, December, 1914.

DAILY PRECIPITATION

Station.	Day of Month.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Claridge,	....	.01	....	....	....	.85	.56	....	....	....	.07	.80	.02	....
Cloe,	....	.06	....	....	....	.38	.75	....	....	....	....	.90	.10	....
Creekside,	....	.40	....	....	....	.83	.80	....	....	....	....	.85	....	....
Cresson,	....	.07	....	....	....	1.24	....	....	....	....	....	2.30	.42	....
Eagles Mere,	....	.18	....	....	....	1.99	....	....	....	....	....	2.53	....	....
Falls Creek,	....	.20	....	....	....	.55	.95	....	....	....	....	.90	....	....
Hadley,	....	.12	.10	....	....	....	.55	....	....	.06	....	.20	....	....
Harrisburg,	....	.02	....	....	....	.88	.64	....	....	....	2.77	.20	....	....
Ketner,	....	.16	.04	....	....	.28	.55	....	....	....	....	1.50	.02	....
Kinsman,	....	.12	.22	....	....	....	.52	....	....	....	....	.29	....	....
Linesville,	....	.10	.10	....	....	....	.53	....	....	....	....	.27	....	....
Murrysville,	....	....	.02	....	....	.24	.62	....	....	....	.20	.60	.05	....
Pennline,	....	.06	....	....	....	....	.51	....	....	....	....	.27	....	....
Summit,	....	.10	T.	....	....	....	.42	....	....	....	....	.30	....	....
Trafford,	....	.04	.01	.02	....	....	.82	....	....	....	....	.85	.11	....
Transfer,	....	.10	....	....	....	.14	.36	....	....	....	....	.21	....	....
Turnerville,	....	.15	.20	....	....	....	.51	....	....	.20	.01	....	....	....
Union City,	....	.13	....	....	....	.13	.41	....	....	....	....	.28	....	....
Westford,	T.	.15	.10	....	....	....	.48	....	T.	....	....	.30	T.	....
Williamsfield,	....	.07	....	....	....	....	.52	....	....	....	....	.36	....	....

—Continued.

ITATION FOR THE YEAR 1914.

June.	July.	August.	September.	October.	November.	December.	Annual.
....	....	6.26	1.21	2.07	1.32	4.78	....
4.64	2.34	3.20	0.60	1.66	1.43	3.75	32.56
5.79	4.69	5.29	0.60	3.77	1.56	4.44	44.63
4.10	3.61	2.47	1.02	2.93	1.75	4.06	38.82
4.45	5.09	3.92	0.90	3.58	1.39	5.30	44.32
5.10	1.60	4.70	1.24	1.70	1.69	2.92	35.78
3.72	2.46	5.71	0.79	3.58	1.28	3.58	38.29
....	....	5.27	0.75	1.54	1.84	4.61	....
2.51	1.56	4.29	2.22	2.59	2.10	3.80	37.70
3.38	6.14	5.53	1.18	3.17	1.84	4.00	43.18
2.95	3.14	3.92	1.25	3.47	2.18	4.35	39.90
....	....	4.31	0.58	2.72	0.93	3.33	....
2.58	4.64	4.38	0.97	3.41	2.23	3.81	40.79
3.37	2.44	3.61	2.98	3.47	2.22	3.74	40.75
....	....	5.35	0.64	2.90	1.08	4.37	....
3.01	2.97	5.48	0.68	2.46	1.38	4.70	37.19
3.94	3.60	6.27	0.87	3.44	1.70	4.09	42.05
1.97	1.47	3.47	1.45	3.08	2.34	3.08	37.06
3.37	2.64	4.45	0.99	2.73	2.30	4.26	38.19
3.94	4.01	5.48	0.99	2.70	2.24	4.28	41.38

FOR JANUARY, 1915.

Day of Month.																	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
....	....	.06	.90	....	....	.02	.40	.20	....	....	.10	....	....	.02	....	.33	3.91
....	....	.22	.64	.10	.05	.04	.06	.40	....	.36	....	....	....	....	....	.11	4.19
.30	....	.12	.53	....	.13	.30	.60	.54	....	.46	....	....	....	....	....	.18	5.54
....	....	.09	.48	.10	.16	.09	.21	.39	.20	.34	....	....	.04	....	....	.23	6.36
.10	....	....	....	1.18	....	....	....	.64	....	.52	....	....	....	....	....	....	7.14
....	....	....	.77	....	.10	.10	.12	.40	....	.20	....	....	....	....	....	.10	4.39
....	....	....	.10	.57	.08	.15	....	.35	.08	.50	....	....	....	....	....	.17	3.05
....	....	....	.61	.32	T.	....	....	.36	....	.49	....	....	....	....	....	.40	6.69
.04	....	.29	.66	.12	.04	.08	.08	.39	.02	.29	....	....	....	....	....	.18	4.74
....	....	.05	....	.60	.10	.12	....	.37	.09	.52	....	....	....	....	....	.09	3.09
....	....	.04	....	.61	.10	.10	.15	.25	.15	.52	.05	....	....	....	....	.06	3.03
....	....	.17	.14	....	.17	.05	.06	.51	....	.19	....	....	....	....	....	.45	3.47
....	....	.05	....	.55	.03	.10	.02	.45	.20	.50	....	....	.02	....	....	.10	2.86
....	....	.04	....	.42	.10	.10	....	.32	.28	.47	....	....	.05	.05	....	.08	2.73
.04	....	.08	.45	.23	.05	.10	....	.67	.09	.42	....	....	....	....	....	.21	4.19
....	....	....	....	.52	.20	.20	.05	.28	.40	.50	....	....	....	....	....	.20	3.16
....	.05	....	.02	.50	.15	.12	.05	.15	.15	.55	....	....	.02	....	....	.25	3.08
....	....	.15	.20	.47	.05	.03	.01	.43	....	.45	....	....	.03	....	....	.12	2.89
....	....	.10	.13	.46	.06	.15	T.	.32	.07	.61	T.	....	.03	....	....	T.	2.96
....	....	.10	....	.59	.07	.09	....	.30	.21	.55	....	....	....	....	....	.10	2.96

TABLE NO. 15

DAILY PRECIPITATION

Station.	Day of Month.										
	1	2	3	4	5	6	7	8	9	10	11
Claridge,	2.18	.56	....	....	.18	.30	....	.10	.20	....	....
Cloe,	1.46	.33	....	....	.07	.28	.05	.09	....	....	....
Creekside,	1.10	.30	....	....	.70	.30	.30	.10	....	....	....
Cresson,	1.02	.28	.09	....	.27	....	.01	.05	.02	....	....
Eagles Mere,	....	*2.44	....	....	.58	....	.06	....	....	....	....
Falls Creek,	1.50	.29	....	....	....	....	....	.15	....	....	....
Hadley,	1.40	.70	....	....	....	.40	....	.20	.05	....	....
Harrisburg,	2.10	.47	T.	....	....	.47	.04	T.	T.	....	....
Ketner,	1.44	.15	.02	....	.02	.33	.07	.03	.04	....	....
Kinsman,	1.44	.52	.02	....	....	.32	.14	.10	....	....	.04
Linesville,	1.35	.51	....	....	....	.25	.10	.20	.10	....	....
Murrysville,	1.10	.42	.06	....	.05	.22	.02	....	....	....	....
Pennline,	1.45	.46	.04	....	....	.27	.07	.18	.10	.10	....
Summit,	1.44	.49	.05	....	....	.26	.10	.05	.05	.05	....
Trafford,	1.18	.40	.19	....	....	.25	.08	.01	.02	.01	....
Transfer,	1.40	.62	....	....	....	.33	....	.20	.10	....	....
Turnerville,	1.56	.33	.02	....	....	.37	.10	.03	....	....	....
Union City,	1.31	.65	.01	....	.05	.29	.02	.25	.02	....	....
Westford,	1.49	.50	.02	....	....	.24	.08	.20	.05	....	....
Williamsfield,	1.40	.54	....	....	....	.22	.06	.07	....	....	....

*Total for 3 days.

DAILY PRECIPITATION

Station.	Day of Month.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Claridge,	....	....	....	....	.50	.18	.16	....	....	.05	....	.08	....	....
Cloe,	....	....	....	....	.02	.59	.22	.03	....	....	.02	....	....	....
Creekside,	....	....	....	....	.10	.53	.19	.05	....	....	....	....	....	....
Cresson,	....	....	....	....	.57	.49	.18	.04	....	....	.01	....	....	....
Eagles Mere,	....	....	....	....	....	....	*.84	....	....	....	....	....	....	....
Falls Creek,	....	....	....	....	....	.50	.20	....	....	....	....	....	....	....
Hadley,	....	....	....	....	....	.20	.18	.18	....	....	....	....	....	....
Harrisburg,	....	....	....	....	....	1.03	.26	T.	....	....	T.	....	....	....
Ketner,	....	.02	....	....	.02	.37	.38	.03	....	....	.01	....	....	....
Kinsman,	....	....	....	....	....	.28	.19	.09	....	....	....	....	....	....
Linesville,	....	....	....	....	....	.25	.23	....	....	....	....	....	....	....
Murrysville,	....	....	....	....	.42	.32	.22	....	....	....	....	....	....	....
Pennline,	....	....	T.	....	....	.25	.18	.14	....	....	.02	T.	....	....
Summit,	....	....	....	....	....	.28	.20	.09	....	....	.05	....	....	....
Trafford,	....	....	....	....	....	.82	.02	.05	....	....	.01	....	....	....
Transfer,	....	....	....	....	....	.33	.18	.11	....	....	.05	.02	....	....
Turnerville,	....	.02	....	....	....	.30	.20	.14	....	....	.05	....	....	....
Union City,	....	....	....	....	.10	.23	.15	....	....	....	.01	....	....	....
Westford,	....	....	.01	....	....	.15	.30	....	....	....	.10	T.	....	....
Williamsfield,	....	....	....	....	....	.32	.17	.12	....	....	....	....	....	....

*Total for 3 days.

—Continued.

FOR FEBRUARY, 1915.

Day of Month.																	Total.
12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
.25	....	.09	.06	....	....	....	....	....	....	....	.09	.35	.04	....	.01	....	4.35
.03	.04	....	.27	....	....	....	....	....	....	....	....	.54	....	....	....	....	3.16
.50	.50	....	.19	....	....	....	....	....	....	....	....	.82	....	....	....	....	4.31
.04	....	.40	.04	....	....	....	....	....	....	....	....	.60	.02	.05	.01	....	2.90
....	....	....	1.12	....	....	....	....	....	....	....	....	1.32	....	....	....	....	5.51
.46	....	....	....	....	....	....	....	....	....	....	....	.69	....	....	....	....	3.09
.07	....	....	.17	....	....	....	....	....	....	.13	....	.13	....	....	....	....	3.25
....	....	....	.71	....	....	....	....	....	....	T.	T.	1.39	....	....	T.	....	5.18
.03	....	.01	.09	....	....	....	....	....	....	....	....	.63	.09	.06	....	....	3.01
....	....	....	.11	....	....	....	....	....	....	....	....	.17	.04	.05	....	....	2.95
.07	T.	....	.10	....	....	....	....	....	....	....	....	.21	....	.05	....	....	2.94
.10	....	....	.06	....	....	....	....	....	....	....	....	.32	....	....	....	....	2.34
.06	.04	....	.04	....	....	....	....	....	....	....	....	.22	.04	.08	T.	....	3.15
.14	.01	....	.06	....	....	....	....	....	....	....	....	.17	.06	.05	.05	....	3.03
.12	....	....	.07	....	....	....	....	....	....	....	....	.16	.12	.04	....	....	2.60
.05	.05	....	.06	....	....	....	....	....	....	....	....	.12	.07	T.	T.	....	3.00
.10	.04	....	.08	....	....	....	....	....	....	....	.01	.10	.09	.02	....	....	2.85
.13	....	....	.14	....	....	....	....	....	....	....	.05	.26	.01	.01	....	....	3.20
.06	.02	....	.09	....	....	....	....	....	....	....	....	.21	T.	.15	.10	.03	3.23
.03	....	....	.03	....	....	....	....	....	....	....	....	.16	.10	....	....	....	2.61

FOR MARCH, 1915.

Day of Month.																	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
....	....	....	....	.20	....	.01	.05	....	....	.28	.07	....	....	.02	....	....	1.60
....	....	....	....	....	....	....	.06	.07	....	.08	.03	....	....	.02	....	....	1.14
....	....	....	....	....	....	....	.60	.40	....	.80	.30	....	....	....	....	....	2.97
....	....	....	....	.09	....	....	.11	.10	....	.08	.02	....	....	.03	.03	....	1.75
....	....	....	....	....	T.	....	.58	....	....	....	....	....	....	....	....	....	1.37
....	....	....	....	....	....	....	.15	....	....	....	....	....	....	....	....	....	0.85
....	....	....	....	....	....	....	....	.20	....	....	.35	....	....	....	....	....	1.11
....	....	....	....	.14	....	....	.13	....	....	T.	....	....	....	T.	....	....	1.56
....	....	....	....	.08	....	....	.09	.05	....	.09	.03	....	....	.06	.08	....	1.26
....	....	....	....	....	....	....	.08	.05	....	....	.21	....	....	....	.08	....	0.98
....	....	....	....	....	....	....	.07	.12	....	....	.25	....	....	.05	.10	....	1.07
....	....	....	....	.05	....	....	....	....	.18	.02	....	....	....	....	....	....	1.21
....	....	....	....	....	....	....	.08	.12	....	....	.22	....	....	T.	.10	....	1.11
....	....	....	....	....	....	....	.20	.10	....	....	.27	....	....	.05	.13	....	1.37
....	.03	....	....	....	.01	....	....	.11	....	....	.09	....	....	.03	....	....	1.17
....	....	....	....	.10	....	....	....	....	.10	.04	.30	....	....	T.	.02	....	1.25
....	....	....	....	....	....	....	.10	.12	....	....	.27	....	....	....	.10	....	1.30
....	....	....	....	....	....	....	.10	.10	....	.18	....	.01	....	.05	.06	....	0.98
....	....	....	....	....	....	....	.09	.06	....	....	.20	....	....	.03	.12	....	1.06
....	....	....	....	....	....	....	.06	.10	....	....	.20	....	....	....	.10	....	1.07

TABLE NO. 15

DAILY PRECIPITATION

Station.	Day of Month.												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Claridge,	....	....	....	....	....	....	....	....	....	.15	.30	.08	....
Cloe,	....	....	....	....	....	.02	....	....	....	.06	.33	....	....
Creekside,	....	....	....	....	....	.30	....	....	....	....	.27	.40	....
Cresson,	....	....	....	....	....	....	....	....	....	....	.23	.23	....
Eagles Mere,	....	....	....	....	.13	....	....	....	....	.22	.27	....	....
Falls Creek,	....	....	....	....	....	....	....	....	....	....	.23	....	....
Hadley,	....	....	....	....	....	.12	....	....	....	....	.15	.10	....
Harrisburg,	....	....	T.	....	....	.08	....	....	....	.59	.28	....	....
Ketner,	....	.01	....	....	.02	.04	....	....	....	.12	.32	....	....
Kinsman,	....	....	....	....	....	....	....	....	....	T.	.21	.11	....
Linesville,	....	.05	....	....	....	.05	....	....	....	....	.23	.20	....
Murrysville,	....	....	....	....	....	....	.05	....	....	....	.31	....	....
Pennline,	....	.03	....	....	....	.05	....	....	....	.03	.27	.46	....
Summit,	....	....	....	....	....	.05	....	....	....	T.	.28	.38	....
Trafford,	....	....	....	....	....	....	....	....	....	....	.23	.14	.11
Transfer,	....	....	....	....	....	.12	....	....	....	....	.14	.21	....
Turnerville,	....	.02	....	....	....	.13	....	....	....	.02	.28	.22	....
Union City,	....	....	....	....	....	.25	....	....	....	.05	.43	.04	....
Westford,	.02	....	....	....	....	.09	....	....	....	.03	.28	.02	....
Williamsfield,	....	....	....	....	....	.08	....	....	....	....	.30	.04	....

DAILY PRECIPITATION

Station.	Day of Month.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Claridge,	....	....	.09	.10	....	....	.40	....	....	....	....	.04	....	....
Cloe,	.09	....	....	.38	.07	.02	.10	.65	....	....	....	.07	....	....
Creekside,	....	....	....	.11	.12	....	.40	.50	....	....	....	.10	....	....
Cresson,	....	....	.10	.53	.12	....	.02	.04	....	....	....	.16	....	....
Eagles Mere,	.55	....	....	....	.97	....	.09	.16	....	....	....	....	....	....
Falls Creek,	.10	....	.42	....	.12	....	.11	.42	....	....	....	....	....	....
Hadley,	....	....	....	.25	....	....	.15	.60	....	....	....	....	....	....
Harrisburg,	T.	....	....	.13	.08	....	.06	.01	....	....	....	.32	....	....
Ketner,	.25	....	.09	.32	.03	.04	.10	.44	....	....	....	....	....	....
Kinsman,	....	....	....	.32	.08	....	.37	.58	.09	....	....	....	....	....
Linesville,	....	....	....	.36	.04	....	.33	.65	.14	....	....	....	....	....
Murrysville,	....	....	.05	.24	....	....	.15	.18	....	....	....	.03	....	....
Pennline,	.08	....	....	.26	.09	T.	.35	.94	.15	....	....	....	....	....
Summit,	.13	....	....	.40	....	....	.33	.73	.22	....	....	....	....	....
Trafford,	....	....	....	.14	.07	.03	.10	.03	....	....	....	....	.01	....
Transfer,	....	....	....	.08	.10	.06	.30	.45	.05	....	....	....	....	....
Turnerville,	.04	....	....	.32	.12	.03	.34	.51	.12	....	....	....	....	....
Union City,	.15	....	....	.84	.40	....	.99	.52	.15	....	....	....	....	....
Westford,	.05	....	....	.30	.05	.05	.31	.59	.11	....	....	....	T.	....
Williamsfield,	.03	....	....	.25	.04	....	.40	.35	.17	....	....	....	....	....

*Total for 2 days.

—Continued.

FOR APRIL, 1915.

Day of Month.																	Total.
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
....	....	....	....	....	....	.15	....	....	.60	....	....	....	....	.07	....	....	1.30
....	....	....	....	....	.08	.09	....	.02	.04	.10	....	....	.73	....	....	....	1.42
....	....	.30	....	....	....	....	....	....	....	....	....	....	.20	.20	....	....	1.67
....	....	....	....	....	.02	.12	....	.24	....	.01	....	....	.11	.16	.05	....	1.17
....	....	....	....	....	.04	....	....	.27	....	....	....	....	.10	1.01	....	....	2.04
....	....	....	....	....	....	.21	....	....	....	....	....	....	....	....	....	....	0.44
....	....	....	....	....	....	....	....	....	.28	....	....	....	....	.45	....	....	1.10
....	....	T.	....	....	T.	.04	....	....	.21	.01	....	.05	.43	.28	.36	....	2.83
....	....	.01	....	....	....	.03	....	....	.10	.04	....	....	.07	.22	....	....	0.98
....	....	....	....	....	....	T.	....	....	....	T.	T.	....	.96	T.	....	T.	1.28
....	....	....	....	....	....	....	....	....	....	....	....	....	....	.41	.06	....	1.00
....	....	.08	....	....	....	.05	....	....	.63	....	....	....	.05	.08	....	....	1.20
....	....	....	T.	....	....	....	....	....	.01	....	....	.35	....	....	....	....	1.20
....	....	....	....	....	....	....	....	....	....	....	....	.08	....	.08	....	....	0.87
....	....	....	.07	....	....	.03	.01	.01	.64	.05	....	.05	....	.04	.60	....	1.98
....	....	....	....	....	....	....	T.	....	....	T.	....	.10	.43	....	....	....	1.09
....	....	....	.02	....	....	....	....	....	.02	....	....	....	....	.45	.08	....	1.19
....	....	.08	....	....	.01	....	....	.01	.16	.01	....	....	.42	.10	....	....	1.51
....	....	....	.04	....	....	....	....	....	.09	.03	....	....	....	.37	....	....	0.97
....	....	....	....	....	....	....	....	....	....	....	....	.02	....	.14	....	....	0.58

FOR MAY, 1915.

Day of Month.																	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
...	.14	.09	....	.02	.16	.80	1.35	....	.80	....	.02	....	....	.95	.52	....	5.48
...	.26	.16	....	.08	.02	.80	.06	....	.89	....	.07	....	....	.07	.21	....	3.95
...	.28	.14	....	.60	.60	.72	.41	....	.39	....	.70	....	....	.17	.48	....	5.72
...	.28	.30	.03	....	.79	.70	.83	.36	.70	.01	.11	....	....	.50	.75	.01	6.34
.32	.04	.11	....	....	....	....	*1.01	....	.29	....	.07	....	....	....	.06	....	3.67
...	.35	.38	....	.10	....	.87	.91	....	.70	....	.06	....	....	.05	....	....	4.59
...	....	.70	....	.21	....	.85	......	....	....	....	.10	....	....	.15	....	....	2.51
...	.18	.13	T.	....	....	.60	1.02	.01	.18	.01	.01	T.	....	.01	.52	....	3.27
...	.26	.35	....	.22	.02	1.35	.20	....	.31	....	.03	....	....	....	....	....	4.01
...	.24	.42	....	.12	....	....	.45	....	.24	....	T.	....	....	T.	T.	....	2.91
...	.23	.75	.01	.16	....	.31	.40	....	....	.24	.09	....	....	....	.01	....	3.72
...	.10	.08	.06	....	.17	.87	.46	....	.60	....	....	....	....	1.08	.72	....	4.79
...	.38	.33	T.	.08	....	.22	1.22	....	.12	.02	.05	....	....	....	.05	....	4.29
...	.42	.03	....	.07	....	.38	.85	....	.23	....	....	T.	....	....	.10	....	3.39
...	.29	.08	....	.03	....	.88	.30	.34	.23	.41	.05	....	....	.41	.78	.19	4.37
...	.18	.43	....	T.	....	.88	.11	.07	.12	T.	.14	....	....	....	T.	....	2.97
...	.20	.66	.02	.10	....	.27	.66	....	.07	.11	.10	....	....	....	.02	....	3.69
...	.19	.27	....	....	....	1.29	.02	....	....	.28	....	....	....	....	....	....	5.10
...	.18	.62	....	.11	....	.64	.12	....	.21	....	.16	T.	....	....	.08	....	3.53
...	.15	.45	....	.07	....	.50	.32	....	.17	....	.17	....	....	....	....	....	3.07

TABLE NO. 15

DAILY PRECIPITATION

Station.	Day of Month.												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Clardige,	....	.04	.50	....	....	....	....	.45	....	....	.16	....	1.10
Cloe,	....	.62	.47	....	....	....	....	.08	....	....	....	.03	.77
Creekside,	....	.74	.60	....	....	....	....	.38	....	....	.13	....	.53
Cresson,	....	1.37	.87	....	....	....	....	.13	....	....	.40	....	.28
Eagles Mere,	....	.43	....	....	....	....	....	.08	....	....	.31	....	.17
Falls Creek,	....	....	.50	.52	....	....	....	.25	....	....	.10	.74	.75
Hadley,	....	....	.55	.05	....	....	....	.70	....	....	....	....	....
Harrisburg,	....	1.32	.59	....	....	....	....	....	....	....	....	.14	.48
Ketner,	....	.20	.36	....	....	....	....	.30	....	....	....	.26	.51
Kinsman,	....	....	.59	.03	....	....	....	.39	....	T.	T.	....	....
Linesville,	....	....	.31	.09	....	....	....	.24	....	....	....	....	....
Murrysville,	....	....	.58	...	....	....	....	.17	....	....	....	....	1.25
Pennline,	....	....	.46	.02	....	....	....	.80	....	....	....	....	....
Summit,	....	....	T.	.48	....	....	....	.55	....	....	....	....	....
Trafford,	....	.02	.49	.06	....	....	....	.23	....	....	....	.16	.75
Transfer,	....	....	.56	T.	....	....	....	.59	....	....	....	....	.27
Turnerville,	....	....	.37	.17	....	....	....	.38	....	....	....	....	....
Union City,	....	.30	.57	....	....	....	....	.32	....	....	....	....	....
Westford,	....	....	.35	.02	....	....	....	.20	....	T.	....	.03	....
Williamsfield,	....	.65	.05	....	....	....	....	.30	....	....	....	....	....

DAILY PRECIPITATION

Station.	Day of Month.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Claridge,	.18	.67	.43	.58	....	....	....	.20	....	....	.70	.29	....	....
Cloe,	....	.84	.29	.04	.34	....	....	.88	....	....	.06	.09	....	....
Creekside,	....	.90	.26	....	.26	....	....	.73	....	....	.41	....	....	....
Cresson,	....	.63	.20	....	.25	....	....	.17	....	....	.63	.02	....	....
Eagles Mere,	....	.64	.15	....	.72	....	....	1.53	....	....	.50	...	.63	....
Falls Creek,	....	.44	.21	.34	.56	....	.02	.50	....	....	.19	.21	.03	....
Hadley,	....	1.50	.40	.25	.25	....	....	1.50	.15	....	....	.90	....	....
Harrisburg,	....	.33	.02	T.	.27	....	....	1.78	....	....	....	.38	....	....
Ketner,	....	2.14	.35	.07	.41	....	.01	.97	....	....	.43	.18	....	....
Kinsman,	.02	.65	....	.11	.53	....	....	1.86	....	....	....	.56	....	....
Linesville,	.07	.56	.05	.16	.56	....	....	2.00	....	....	....	1.00	.35	....
Murrysville,	....	.84	.10	....	...	....	....	.70	....	.46	....	....	....	....
Pennline,	.02	.33	T.	.46	.48	....	....	1.75	....	....	....	.67	T.	....
Summit,	....	.60	....	.30	.73	.04	....	1.60	....	....	....	.58	.02	....
Trafford,	.31	.27	.41	.42	.22	....	....	.12	.05	....	.21	.13	....	....
Transfer,	.03	.22	.16	.16	.40	....	T.	1.05	....	....	....	.52	....	....
Turnerville,	.56	1.15	.02	.10	.61	....	....	2.13	....	....	....	.58	....	....
Union City,	...	.35	.50	....	.36	....	.10	2.06	....	....	.78	.45	....	....
Westford,	.01	.58	.03	.24	.65	....	T.	2.18	....	....	....	.82	....	....
Williamsfield,	.02	.58	....	.58	.55	....	....	1.73	....	....	....	.72	....	....

—Continued.

FOR JUNE, 1915.

Day of Month.																	Total.
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
.09	.21	....	....	....	.14	....	....	.05	....	....	.75	....	....	....	.14	.92	4.55
.23	.21	....	....	....	.45	....	....	.17	....	....	.27	.87	....	....	....	1.13	5.30
.18	.25	.20	....	....	.24	....	....	....	....	....	....	.41	....	....	.40	1.05	5.11
....	.03	....	....	....	.55	....	....	....	.02	....	....	.35	.14	....	....	1.46	5.58
....	.87	....	.67	....	.50	....	....	.93	....	....	.17	....	....	....	....	2.86	6.99
....	.05	....	....	....	.32	....	....	....	....	....	....	....	....	....	.06	2.10	5.38
.70	1.00	.05	....	....	.10	....	....	....	.35	....	....	....	....	....	....	1.13	4.63
....	.07	....	....	.04	.04	....	....	.58	.16	....	....	.03	....	....	....	.79	4.18
.46	.10	....	....	....	.27	....	....	.88	....	....	....	....	....	....	.03	2.27	5.64
.44	1.05	.34	....	....	.18	T.	....	T.	....	....	T.	....	....	....	....	.76	3.78
.33	.34	.72	....	....	.27	....	....	.06	....	....	....	....	....	....	....	.40	2.76
.07	.38	....	....	.10	....	....	....	....	....	....	.10	.08	....	....	.10	1.25	4.08
.22	.91	.10	....	....	.30	.02	T.	....	....	....	....	....	....	....	....	.20	3.08
.18	.32	.40	....	....	.65	.05	....	....	....	....	....	....	....	....	....	.23	2.80
.52	.23	.15	....	.15	....	.01	....	....	.08	....	.47	....	....	....	....	.98	4.30
....	1.45	.34	....	....	.26	....	....	....	T.	....	....	....	....	....	....	1.10	4.57
.35	.38	1.03	....	....	.21	.04	....	.02	.17	....	.02	....	....	....	....	.28	3.42
.40	....	....	....	....	....	....	....	.28	....	....	....	....	....	....	.68	.28	2.83
.26	1.01	.03	....	....	.30	.01	....	....	.08	....	.01	....	....	....	....	.65	2.95
.17	.28	.32	....	....	.55	....	....	....	.10	....	.03	....	....	....	....	.72	3.17

FOR JULY, 1915.

Day of Month.																	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
.32	.30	....	....	....	....	.19	.02	....	....	....	.24	....	.02	.10	.55	.08	4.87
.04	.07	.05	....	.06	.02	1.25	....	....	.04	....	....	.05	....	.48	.16	....	4.75
.10	.55	.51	....	....	....	.20	....	....	....	....	....	.14	....	.30	.28	....	4.64
.05	.11	.03	....	.01	.03	.46	....	.32	....	....	.07	.05	....	.04	.06	....	3.13
....	....	.06	....	....	....	.15	....	....	....	....	....	.76	....	....	.34	....	5.48
.10	.75	....	....	.12	.02	.73	....	....	....	....	.03	.30	.02	.07	.05	....	4.69
.10	.60	.15	....	....	....	.40	....	....	....	....	....	.47	....	.20	....	....	6.87
.06	.27	....	....	1.21	....	.10	....	....	....	....	.55	....	....	.05	.19	....	5.21
.02	.97	.28	....	.25	....	.32	....	....	....	....	.39	....	.04	....	....	....	6.83
.27	.30	.25	....	....	T.	....	T.	....	....	....	T.	....	.04	....	.20	....	4.79
....	.29	.79	....	....	.04	.24	....	....	....	....	.05	.10	....	....	.21	....	6.47
.36	.43	....	....	.07	....	....	....	....	....	....	.55	....	.06	.58	....	.05	4.25
.06	.18	.59	....	....	.01	.15	.06	....	....	....	.04	....	....	.05	.02	....	4.87
....	.19	.87	....	....	....	.27	....	....	....	....	.05	.33	....	....	.10	....	5.68
.23	.55	.03	....	....	.09	....	....	....	....	....	....	.07	....	.02	.82	....	3.95
.10	.18	.26	....	....	....	.27	....	....	....	....	T.	....	....	.07	.14	....	3.56
.16	1.01	.17	....	.01	.03	.03	....	....	....	.03	.06	.14	....	.02	.18	.01	7.00
.11	.32	.40	....	.04	....	.52	....	....	....	....	.50	....	.16	.52	....	....	7.17
.11	.37	.46	....	....	.05	.43	T.	.01	....	....	.08	.57	....	.03	.08	T.	6.70
.18	.34	.62	....	....	.06	.44	....	....	....	....	.09	.92	....	.05	.08	....	6.96

TABLE NO. 15

DAILY PRECIPITATION

Station.	Day of Month.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Claridge,	....	.25	1.17	1.12	....	....	.32	.15	....	....	.02	....	....	....
Cloe,	.40	1.39	.06	.36	....	....	....	.07	.55	....	....	.13	....	....
Creekside,	.14	.56	.11	.29	....	....	....	.80	.52	....	....	.80	....	....
Cresson,	....	.31	.03	.48	....	.04	.10	.22	....	....	....	.30	....	....
Eagles Mere,	.08	....	....	1.67	....	....	....	1.35	.35	....	....	.30	....	....
Falls Creek,	....	.05	.12	.42	....	....	....	.02	1.51	....	....	.28	.36	....
Hadley,	....	....	.67	1.90	....	....	....	.30	.52	....	....	1.00	....	....
Harrisburg,	....	.51	.09	1.40	....	.85	....	.56	.20	....	....	.63	....	....
Ketner,	.26	.24	.01	.32	....	....	.04	.04	.33	....	....	.31	....	....
Kinsman,	....	....	T.	.67	.99	....	.11	.44	....	T.	....	.21	.34	.04
Linesville,	....	....	.54	2.50	.05	....	.12	.21	....	....	....	.35	.08	....
Murrysville,	....	.78	.64	.98	....	....	....	.30	.32	....	.11	....	....	....
Pennline,	....	....	.88	1.54	.07	.10	.01	.02	.21	....	....	.15	.22	.01
Summit,	....	....	.60	1.92	.06	.04	....	.14	.30	....	....	.30	.47	.11
Trafford,	.04	.02	.98	1.82	....	....	.04	.04	.42	....	....	...	....	....
Transfer,	.06	....	.56	2.04	....	....	.12	.14	.57	T.	....	.33	....	....
Turnerville,	T.	T.	.70	1.36	.14	.02	.32	.35	.01	....	....	.26	.27	....
Union City,	....	....	1.13	1.43	....	.02	.18	.23	.04	....	....	.48	.11	....
Westford,	....	....	.74	1.17	....	.08	.11	.10	T.	T.	....	.26	.09	.02
Williamsfield,	....	....	.58	1.06	....	.10	.06	.12	....	....	....	.18	.55	.06

DAILY PRECIPITATION

Station.	Day of Month.												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Cloe,	....	....	....	....	....	.07	.05	.03	....	.03	....	....	....
Creekside,	....	....	....	....	....	.70	.11	.12	.30	....	.94	....	....
Cresson,	....	....	....	....	.08	.82	.03	.02	....	....	.37	....	....
Eagles Mere,	....	....	....	....	....	.22	....	....	....	....	....	.28	....
Falls Creek,	....	....	....	....	....	.08	....	.15	....	....	....	....	....
Hadley,	....	....	....	....	....	....	....	....	.15	....	....	....	....
Harrisburg,	....	....	....	....	....	.47	.07	....	....	....	1.50	....	....
Ketner,	....	....	....	....	....	.09	.52	.13	.14	....	....	.07	.02
Kinsman,	....	....	....	....	.04	.72	....	T.	T.	....	....	....	....
Linesville,	....	....	....	....	....	.15	.21	....	....	....	....	....	....
Pennline.	....	....	....	....	....	.32	.32	....	....	....	.10	....	....
Summit,	....	....	....	....	T.	....	.45	....	....	....	.05	....	....
Transfer,	....	....	....	....	T.	.19	.09	....	.07	....	....	T.	.19
Turnerville,	....	....	....	....	....	.17	.20	....	....	....	....	....	....
Union City,	....	....	....	....	....	.18	.70	....	....	....	....	.52	....
Westford,	....	....	....	....	.01	.21	.24	.02	....	....	.07	....	....
Williamsfield,	....	....	....	....	....	.30	.10	.03	....	....	.10	....	....

—Continued.

FOR AUGUST, 1915.

Day of Month.																	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
....	.08	....	....	....	....	....	.20	.28	....	....	....	....	.55	....	....	....	4.09
....	....	.02	....	....	....	.45	.10	.08	....	....	....	....	.17	.25	....	....	3.97
....	....	....	....	....	....	.30	.10	.80	....	....	....	....	.28	.90	....	....	5.60
.09	....	.02	....	....	....	.67	.33	.07	.03	....	....	....	.32	.05	.18	....	3.24
.11	....	....	....	....	....	....	1.77	.55	....	....	....	....	....	....	1.11	....	7.29
....	....	.05	....	....	....	1.09	.31	.06	.02	....	....	....	.28	.46	....	....	5.08
.65	....	.15	....	....	....	....	.40	....	....	....	....	....	....	.30	....	....	5.89
.36	....	....	....	....	....	4.60	....	....	....	.02	....	....	.40	.82	.56	....	11.00
.08	....	.04	....	....	....	1.26	.74	.17	....	....	....	....	....	.36	.07	....	4.27
.60	....	....	.08	....	....	.10	.34	.02	....	T.	....	....	....	.39	.15	....	4.55
.35	....	....	....	....	....	.05	.43	.20	....	....	....	....	....	.32	.04	....	5.24
....	....	....	....	....	.27	.05	....	....	....	....	....	....	.85	....	....	....	4.30
.24	....	.73	....	....	....	.15	.28	.81	....	.06	....	T.	....	.47	.55	T.	6.50
.19	....	.26	....	....	....	.10	.56	.22	....	.05	....	T.	....	.39	.28	.03	6.02
....	....	.02	.05	....	....	.23	.21	.02	.03	....	....	....	.32	.23	....	....	4.02
.40	.23	.04	....	....	....	.15	.18	.02	....	....	....	....	....	.24	T.	....	5.08
.77	....	.06	....	....	....	.20	.33	.12	....	....	....	....	....	.23	.08	....	5.22
.59	.51	.05	....	....	....	1.13	.44	.02	....	....	....	....	.15	.13	.60	....	7.24
.38	....	.14	....	....	....	.10	.38	.13	....	....	....	T.	....	.31	.10	T.	4.09
.19	....	.18	....	....	....	.10	.27	.12	....	....	....	....	....	.50	.42	....	4.44

FOR SEPTEMBER, 1915.

Day of Month.																	Total.
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
....	....	....	....	.02	1.06	....	.05	.07	....	....	....	.40	....	....	....	....	1.78
....	....	....	....	.40	....	....	.51	....	....	....	....	.55	.13	....	....	....	3.76
....	.02	....	.01	.44	....	....	.14	....	....	....	.37	....	....	....	....	....	2.30
....	....	....	....	....	....	1.10	.58	....	....	....	....	.14	....	....	....	....	2.32
....	....	....	....	....	.90	....	....	....	....	....	....	.56	....	....	....	.12	1.81
....	....	....	....	....	2.00	.10	....	....	....	....	....	....	.90	....	....	....	3.15
....	....	....	.08	....	.87	....	.51	....	....	....	....	.04	....	....	....	....	3.54
....	....	....	....	....	1.27	....	.26	....	....	....	....	.51	....	....	....	....	3.01
....	....	.54	.02	....	1.20	.44	T.	T.	....	....	....	T.	.78	....	....	....	3.74
....	....	.12	.22	....	.91	....	.18	.21	....	....	....	....	.76	....	....	....	2.76
....	....	.20	.43	....	.72	....	.06	.01	....	....	....	.02	.89	....	....	....	3.07
....	....	.33	.76	....	.45	....	....	....	....	....	....	....	1.05	....	....	....	3.09
....	....	....	T.	....	1.01	.44	....	....	....	....	....	....	.68	....	....	....	2.67
....	....	.28	....	.05	1.18	....	.05	....	....	....	....	....	.75	....	....	....	2.68
....	.12	....	.16	.80	.60	....	.23	.02	....	....	....	1.18	....	....	....	....	4.50
....	....	.02	.10	.01	1.09	....	.19	.05	....	....	....	....	.75	....	....	....	2.76
....	....	.08	.10	....	1.35	....	.15	....	....	....	....	....	.74	....	....	....	2.95

TABLE NO. 15

DAILY PRECIPITATION

Station.	Day of Month.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Cloe,	.69	.19	....	....	.52	....	....	....	....	....	....	....	....	....
Creekside,	.90	.12	....	.15	.35	....	....	....	.03	....	....	....	....	....
Cresson,	1.27	.12	....	....	.24	....	....	....	....	....	....	....	.02	.02
Eagles Mere,	....	.52	....	....	.42	....	....	....	....	....	....	....	....	....
Falls Creek,	1.40	.22	.18	.84	....	....	....	....	.04	....	....	....	....	....
Hadley,	.28	.50	....	....	....	.25	....	....	....	....	....	....	....	....
Harrisburg,	.72	.35	....	....	.39	....	....	.02	....	....	....	....	....	T.
Ketner,	.41	.21	....	....	1.05	....	....	....	.04	....	....	....	....	....
Kinsman,	.12	.54	....	....	.44	T.	....	....	T.	T.	....	....	....	.11
Linesville,	.23	.43	....	....	.45	....	....	....	....	.10	....	....	....	....
Pennline,	.22	.57	....	....	.18	.03	....	....	.20	.21	....	....	....	.06
Summit,	.20	.50	....	....	....	.11	....	....	.30	.60	....	....	....	....
Transfer,	.27	.52	....	....	.45	....	....	....	....	....	....	....	....	.05
Turnerville,	.40	.58	....	....	.56	....	....	....	.04	.03	....	....	....	.07
Union City,	.30	.25	....	....	.40	....	....	....	1.44	.18	....	....	....	....
Westford,	.25	.50	.01	T.	.35	.02	....	....	.05	.03	....	....	....	.07
Williamsfield,	.22	.51	....	....	.15	....	....	....	.05	.03	....	....	....	.06

DAILY PRECIPITATION

Station.	Day of Month.												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Cloe,	....	....	....	.11	.03	....	....	....	.07	....	....	.26	....
Creekside,	....	....	....	.10	....	....	....	.05	.12	....	....	.29	....
Cresson,	....	....	....	.13	....	....	....	.07	....	....	....	.06	....
Eagles Mere,	....	.08	.27	....	....	....	....	.16	....	....	.01	.12	....
Falls Creek,	....	....	....	.09	.02	....	....	.02	....	.14	....	....	....
Hadley,	....	....	....	....	....	....	....	....	....	....	....	.20	.10
Harrisburg,	....	....	....	.07	....	....	....	....	.01	....	....	.07	....
Ketner,	....	.04	.03	.14	....	....	....	.01	....	....	.08	.28	....
Kinsman,	....	....	....	....	.02	....	....	....	....	....	....	.55	T.
Linesville,	....	.05	....	.07	....	....	....	....	.06	....	....	.32	.05
Pennline,	....	....	....	.07	....	....	....	....	....	....	....	.26	....
Summit,	....	....	.19	T.	....	....	....	....	.04	....	....	.30	....
Transfer,	....	....	....	T.	....	....	....	....	....	....	....	.31	T.
Turnerville,	....	....	....	.03	.02	....	....	....	....	....	....	.33	....
Westford,	....	....	.02	.07	.02	T.	....	....	....	....	....	.34	....
Williamsfield,	....	....	....	.08	....	....	....	....	....	....	....	.34	....

—Continued.

FOR OCTOBER, 1915.

Day of Month.																	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
.03	....	....	.27	.31	....	....	....	....	....	....	.07	....	....	....	....	....	2.08
....	....	....	.11	.64	....	....	....	....	....	....	.05	....	....	....	....	....	2.35
....	.01	.65	.50	.06	....	....	....	....	....	....	.13	....	....	.14	....	....	3.18
....	....	....	....	.98	....	....	....	....	....	....	.18	....	....	....	....	....	2.06
....	....	....	....	.56	....	....	....	....	....	.04	....	....	....	....	.05	....	3.33
.45	....	....	....	.50	....	....	....	....	....	....	....	....	....	....	....	....	1.98
....	....	.07	T.	.60	....	T.	....	....	....	....	.32	....	....	....	....	....	2.47
.05	....	....	....	.45	....	....	....	....	....	....	.03	....	....	....	....	....	2.24
.40	....	....	.34	.73	T.	....	....	....	....	....	....	....	....	T.	....	....	2.68
.71	....	....	.06	.62	....	....	....	....	....	....	....	....	....	....	....	....	2.62
.50	....	....	.11	.28	....	....	....	....	....	....	....	....	....	....	....	....	2.36
.60	....	....	.12	.22	....	....	....	....	....	....	....	....	....	T.	....	....	2.65
.38	....	....	.09	.48	.02	....	....	....	....	....	T.	....	....	....	....	....	2.26
.68	....	....	.15	.75	....	....	....	....	....	....	....	....	....	.03	....	....	3.29
.57	....	....	.65	....	....	....	....	....	....	....	....	....	....	....	....	....	3.79
.62	T.	T.	.09	.48	T.	....	....	....	....	....	....	....	....	.01	....	....	2.48
.75	....	....	.13	.28	....	....	....	....	....	....	....	....	....	....	....	....	2.19

FOR NOVEMBER, 1915.

Day of Month.																	Total.
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
....	.35	....	....	....	.63	.05	.08	....	....	.03	....	....	.05	....	.03	.05	1.74
.09	.48	....	....	....	.55	....	.10	....	....	....	....	....	.08	....	....	....	1.86
.57	.25	....	....	....	.90	.29	.07	.01	.02	....	....	....	.01	....	.04	.01	2.43
....	....	....	....	....	1.10	....	....	....	....	....	....	....	....	....	.31	....	2.05
.44	.03	....	....	....	.58	.09	.06	.15	.04	.07	....	.04	....	....	....	.03	1.80
....	.60	.10	....	....	.30	.25	.35	....	....	....	....	....	.20	.15	.06	.05	2.36
....	.83	....	....	....	.85	....	T.	....	.05	....	....	....	.04	....	.04	....	1.96
....	.49	.03	.01	....	.52	.19	.26	.06	....	.02	....	....	.12	....	.05	.04	2.37
....	.44	.04	....	....	.40	.15	.24	....	....	.09	....	....	.31	....	.23	....	2.47
....	.41	.12	....	....	.25	.17	.27	.10	....	....	....	....	.30	....	.20	....	2.37
....	.41	.08	....	....	.27	.41	.33	.08	.05	.04	....	....	.45	.12	.08	.30	2.95
....	.40	.07	....	....	.27	.48	.34	.42	.08	.04	....	....	.47	.05	.08	.19	3.42
....	.60	.04	....	....	.32	.20	.14	....	....	....	....	....	.27	....	.05	T.	1.98
....	.36	....	....	....	.35	.15	.10	.10	....	.03	....	....	.33	....	.15	.08	2.08
....	.33	.10	....	....	.28	.15	.28	.10	.10	.04	....	....	.35	....	.08	.30	2.56
....	.22	....	....	....	.40	.21	.28	.05	....	.05	....	....	.35	....	.08	.02	2.08

TABLE NO. 15

DAILY PRECIPITATION

Station.	Day of Month.													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Cloe,	....	.11	....	....	....	....	....	....	.07	.02	....	....	.08	.05
Creekside,	....	.20	....	....	....	....	....	....	.05	....	....	....	.25	....
Cresson,	....	.12	....	.02	....	.01	....	.02	.21	.08	....	....	.39	.12
Eagles Mere,	....	.18	....	....	....	....	....	.09	....	....	....	....	....	....
Falls Creek,	....	.18	....	....	....	....	....	....	.12	....	....	....	.03	.28
Hadley,	....	.15	....	.08	....	....	....	....	.15	.55	....	....	.40	.12
Harrisburg,	T.	.05	....	T.	....	....	....	....	T.	T.	....	....	.23	.08
Ketner,	.01	.12	....	.02	....	....	....	.01	.10	.07	.02	.01	.23	.12
Kinsman.	....	.10	T.	.05	....	....	....	....	.25	.07	....	....	.25	.12
Linesville,	....	.15	.10	.12	....	....	....	....	.15	.42	....	....	.23	.15
Pennline,	....	.10	.02	.10	T.	.02	....	....	.15	.25	....	....	.22	.06
Summit ,	.20	.20	T.	.12	T.	T.	....	....	.17	.36	....	....	.29	.40
Transfer,	....	.20	T.	T.	....	....	....	....	.25	.20	.02	....	.20	.20
Turnerville,	....	.17	....	.10	....	.02	....	....	.30	.20	....	....	.25	.60
Union City,	....	.15	.02	.03	....	....	....	.04	.17	.01	....	....	.17	.06
Westford,	....	.15	.15	.05	....	.01	....	....	.22	.20	....	....	.27	.13
Williamsfield,	....	.13	....	.10	....	....	....	....	.21	....	....	....	.32	.04

MONTHLY AND ANNUAL PRECIP

Station.	January.	February.	March.	April.	May.
Claridge,	3.91	4.35	1.60	1.30	5.48
Cloe,	4.19	3.16	1.14	1.42	3.95
Creekside,	5.54	4.31	2.97	1.67	5.72
Cresson,	6.36	2.90	1.75	1.17	6.34
Eagles Mere,	7.14	5.51	1.37	2.04	3.67
Falls Creek,	4.39	3.09	0.85	0.44	4.59
Hadley,	3.05	3.25	1.11	1.10	2.51
Harrisburg,	6.69	5.18	1.56	2.33	3.27
Ketner,	4.74	3.01	1.26	0.98	4.01
Kinsman,	3.09	2.95	0.98	1.28	2.91
Linesville,	3.03	2.94	1.07	1.00	3.72
Murrysville,	3.47	2.34	1.21	1.20	4.79
Pennline,	2.86	3.15	1.11	1.20	4.29
Summit,	2.73	3.03	1.37	0.87	3.89
Trafford,	4.19	2.60	1.17	1.98	4.37
Transfer,	3.16	3.00	1.25	1.00	2.97
Turnerville,	3.08	2.85	1.30	1.19	3.69
Union City,	2.89	3.20	0.98	1.51	5.10
Westford,	2.96	3.23	1.06	0.97	3.53
Williamsfield,	2.96	2.61	1.07	0.58	3.07

—Continued.

FOR DECEMBER, 1915.

Day of Month.																	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
.07	....	.83	.61	....	....	....	....	.18	.03	.82	.04	....	.33	.96	....	....	3.70
....	....	.85	.60	....	....	....	....	.10	....	.50	....	....	.30	.90	....	....	3.75
.02	....	.97	.61	....	.08	....	....	.08	....	.22	.22	....	.12	.93	....	....	4.07
.65	....	1.73	....	....	....	....	....	.12	....	.91	....	....	....	1.07	....	....	4.75
....	....	.80	.63	....	....	....	....	.28	....	.30	....	....	....	.93	....	....	3.53
.34	....	.30	.55	.10	....	....	....	....	.20	.10	.20	....	.35	....	.45	....	4.04
....	....	.77	1.17	....	....	....	....	T.	....	....	.72	....	.07	1.09	....	....	4.13
.07	....	.68	.65	.02	.08	.01	....	.15	.01	.45	.13	....	.21	.70	....	....	3.81
.15	....	.24	.41	....	....	....	....	T.	.28	.19	.16	....	.37	.07	.82	....	3.51
.10	.10	.21	.45	....	.11	....	....	.06	....	.48	.10	....	.37	.14	1.14	....	4.57
.02	....	.18	.50	.02	.02	T.	....	....	.26	.24	.14	....	.45	.07	.51	....	3.33
.20	....	.18	.45	.13	.10	T.	....	.03	.23	.30	.10	....	.45	.15	.45	....	4.51
.50	....	.36	.45	....	....	....	....	.05	.18	.05	.17	....	.34	.32	.40	....	3.89
.25	....	.23	.20	.02	....	....	....	.08	.03	.31	.10	....	.38	.16	.77	....	4.12
.03	....	.60	.28	.05	....	....	....	.20	.04	.47	.10	....	.30	.40	....	....	3.07
.30	....	.19	.56	T.	....	....	....	.16	T.	.26	.10	....	.40	.24	.58	....	4.02
.01	....	.20	.55	....	....	....	....	....	.20	.27	.05	....	.40	.16	.63	....	3.27

ITATION FOR THE YEAR 1915.

June.	July.	August.	September.	October.	November.	December.	Annual.
4.65	4.87	4.09	....	....	....	....	....
5.30	4.75	3.97	1.78	2.08	1.74	3.70	37.18
5.11	4.64	5.60	3.76	2.35	1.86	3.75	47.28
5.58	3.13	3.24	2.30	3.18	2.43	4.07	42.45
6.99	5.48	7.29	2.32	2.05	2.05	4.75	50.66
5.38	4.69	5.08	1.81	3.33	1.80	3.53	38.98
4.63	6.87	5.89	3.15	1.98	2.36	4.04	39.94
4.18	5.21	11.00	3.54	2.47	1.96	4.13	51.52
5.64	6.83	4.27	3.01	2.24	2.37	3.81	42.17
3.78	4.79	4.55	3.74	2.68	2.47	3.51	36.73
2.76	6.47	5.24	2.76	2.62	2.37	4.57	38.55
4.08	4.25	4.30	....	....	....	....	....
3.03	4.87	6.50	3.07	2.36	2.95	3.33	38.72
2.86	5.68	6.02	3.09	2.65	3.42	4.51	40.12
4.30	3.95	4.02	....	....	....	....	....
4.57	3.56	5.08	2.67	2.26	1.93	3.89	35.34
3.42	7.00	5.22	2.68	3.29	2.08	4.12	39.87
2.33	7.17	7.24	4.50	3.79	....	3.07	....
2.95	6.70	4.09	2.76	2.48	2.56	4.02	37.31
3.17	6.96	4.44	2.95	2.18	2.08	3.27	35.34

GENERAL RESUMÉ OF THE MONTHLY PRECIPITATION FOR PENNSYLVANIA FROM OCTOBER 1, 1914, TO DECEMBER 31, 1915, AND ANNUAL SUMMARIES FOR 1914 AND 1915.

OCTOBER: The average precipitation over the State was about 2.4 inches, or 0.9 of an inch less than the October normal. The major portion of the rainfall occurred during the middle of the month and was readily absorbed by the soil, thereby not materially affecting the stream flow or increasing the water supply, except in the western part of the State where the deficiency was slight.

NOVEMBER: There was an average precipitation of 1.8 inches, which was about three-fifths of the November normal, and the deficiency was comparatively uniform over the entire State. Snowfalls of moderate intensity occurred over the northern and western counties during the third week, the heaviest being 22.5 inches at Edinboro, Erie County. Such an amount is not unusual during November for localities in the northwestern part of the State. In November, 1910, Warren reported 35.2 inches of snow for the month, and in 1911 there were three observers who reported 18.0 inches. Traces of snow were reported from the central and southeastern districts.

DECEMBER: The average precipitation was 4.6 inches, which was about 30 per cent in excess of the normal for December. On the 13th a sleet and ice storm covered the eastern part of the State, which caused damage to wire service and trees. The snowfall was heavier than usual for December, amounting to an average of about 15 inches in the mountain districts and 20 inches or more in the northern central counties. In the Ohio Basin the amount ranged from 6 to 20 inches, while in the extreme southeast the snowfall was light.

1914: The average precipitation for the year was about 38 inches, or 12 per cent less than the average for 27 years, and the marked feature of the year was the drought which prevailed from May to November inclusive, with an average deficiency of 5.7 inches. The rainfall during the summer months was well distributed and the effects of the deficiency were not materially felt until the first of September. However, the three months of severe drought that followed seriously affected water supplies, especially in the southeastern counties where the greatest deficiency in rainfall occurred.

JANUARY: The average precipitation for the month was 5.6 inches, or approximately 60 per cent above the normal. In Erie and Warren counties there was a slight deficiency, but elsewhere the excess was general and comparatively uniform. Precipitation occurred every day from the 17th to the 25th inclusive and covered practically all parts of the State. The average snowfall for the month was 14.7 inches and has not been exceeded in January since 1910. The heaviest fall for the month was 38.7 inches at Somerset, with Altoona, Austin, Clearfield and Johnstown following closely with amounts of 30 inches or more.

FEBRUARY: There was an average precipitation of 3.9 inches, which was 0.7 of an inch in excess of the normal, or approximately 20 per cent above the February average. This amount was exceeded several times during the earlier records, though it was the largest February precipitation for the last six years. The snowfall for the month was light, averaging only 2.0 inches, and was mainly confined to the mountain districts and a few northwestern counties.

MARCH: There was an average precipitation of 1.3 inches, which was 2.4 inches less than the normal or one-third of the March average. The snowfall for the month averaged 9.5 inches and was lightest in the northwestern counties where it is usually the heaviest. The greatest snowfall ocurred over the headwaters of the Schuylkill and Susquehanna Basins. In general, the deficiency in precipitation was greater in the Ohio Basin than any other portion of the State.

APRIL: The precipitation for the month was about one-half of the April average and the lowest in 15 years, although it was much heavier in the eastern part of the State than in the western section. On the 3d a severe coast storm covered several of the southeastern counties and caused an intense snowfall amounting to 19.0 inches in 12 hours at Philadelphia, breaking all previous records for any month in that locality. Excepting the few southeastern counties covered by this storm the snowfall for April was negligible. The average temperature for the month was the highest on record for April since the establishment of the State Weather Service, which covers a period of 28 years.

MAY: The rainfall for the month averaged 4.2 inches and was about half an inch above the normal though this amount had been exceeded ten times during the last 28 years. The greatest excess was reported from the southwestern portion of the State, yet no excessive precipitation occurred and no damage was caused by floods.

JUNE: The average rainfall was about 4.0 inches, or less than 0.1 of an inch in excess of the June normal. The distribution was comparatively uniform, there being a moderate deficiency in the Delaware Basin and a slight excess throughout the remainder of the State.

JULY: The average rainfall was about 5.3 inches, or 1.0 inch above the July normal. There was an average of 15 rainy days during the month and there was no day on which rain did not occur in some part of the State. The excessive daily rains were confined to the northern counties, and the only instance of flood stages on the streams appeared in the North Branch Susquehanna River and its tributaries. The greatest 24-hour rainfall was 3.5 inches at Montrose on the 8th, while the second and third greatest occurred at Le Roy and Towanda, which were 3.0 inches and 2.7 inches respectively on the same day, all three stations being in the drainage basin of the North Branch Susquehanna River.

AUGUST: The average rainfall for the month was 6.7 inches, which was 2.6 inches in excess of the normal and had been exceeded only three times in August since 1888. The heaviest rainfall occurred in districts east of the Susquehanna River, where the average was about 8.0 inches. A total of 14.44 inches was recorded at Lansford and has been exceeded only once in 28 years, there having been 15.14 inches measured at Kennett Square in August, 1911. Several intense rainfalls occurred during the month, the most notable of which were at Erie and Harrisburg. On the 3d there was a rainfall of 4.27 inches in three and one-half hours at Erie, which caused the destructive flood in Mill Creek, with a maximum intensity of 1.5 inches in one hour, and on the 21st there was a rainfall of about 4.4 inches in four and one-half hours at Harrisburg, with a maximum intensity of 2.34 inches in one hour.

SEPTEMBER: The average precipitation was 2.6 inches, which was 0.7 of an inch below the normal for September. A deficiency was reported from about 85 per cent of the rainfall stations and was greatest in the southeastern counties. The rainfall occurred largely as local showers, which were heaviest and most general on the 6th, 19th and 21st.

OCTOBER: The average rainfall for the month was 2.6 inches, being about 0.5 of an inch below the October average. A general deficiency was reported from all parts of the State except a few scattered localities where local, heavy showers occurred. The greatest deficiency was in the eastern portion of the State and occurred in districts where the rainfall of the preceding month was heaviest, although the extreme southeastern counties were abnormally dry in September. Traces of snow were reported from the western tier of counties, but no measurable quantity fell at any locality. The heaviest 24-hour rainfalls were 2.34 inches at Mount Pocono and 2.13 inches at Renovo, though more than one-half of the stations reported less than one inch for their maximum 24-hour rainfall.

NOVEMBER: The average precipitation over the State was 2.2 inches, or about 0.6 of an inch below the November normal. As October experienced a moderate deficiency, the streams were comparatively low, although the water supply was sufficient for all needs. The snowfall for the State was light except in some of the northwestern counties, the average for the State being 1.3 inches, while Corry and Saegerstown reported 22.5 and 18.0 inches respectively.

DECEMBER: The precipitation was moderately heavy in all districts, the snowfall being greater than ordinarily occurs in December, and covering nearly all of the State on and after the 13th of the month.

The average precipitation was 4.1 inches, being about 0.8 of an inch above the December normal. An excess was recorded in nearly all districts and was greatest in the Ohio Basin, though some mountain districts, in the eastern part of the State, reported a large excess. The snowfall averaged 13.7 inches, the greatest in any locality being 33.3 inches at Somerset. The heaviest snowfall covering any large area was in the northwestern counties where it averaged nearly 30 inches. In the central portion of the State the distribution wa irregular, ranging from 2.5 to 15.5 inches.

1915: The average precipitation for the year was about 44 inches or 2 per cent in excess of the average for 28 years. The marked feature of the year was the excessive rainfall which occurred during the month of August and resulted in the greatest stream discharge on record for that season of the year.

CHAPTER VII.

HYDROGRAPHY.

STREAM FLOW CONDITIONS DURING THE YEAR.

The late summer and fall of 1914 was characterized by a marked deficiency in stream flow, which is described and analyzed at the end of this chapter, under the heading "Drought of 1914." During January and February, 1915, there was an excessive run-off, that in the central and eastern part of the State being 171 per cent of the normal,* while that in the western part was 138 per cent. The next four months witnessed a decided reduction of the seasonable flow, with 56 per cent of the normal in the central and eastern and 47 per cent in the western part of the State. July and August, 1915, were unusually wet months, as shown by a run-off of 242 per cent of the normal in the eastern and 278 per cent in the western part of the State. In eastern Pennsylvania, during September, 1915, the run-off was 121 per cent of the normal, while in the western part it was 84 per cent.

SUMMARY OF DISCHARGE PER SQUARE MILE.

The following summary of discharge indicates the seasonable distribution of run-off and shows the almost entire lack of agreement between any two streams. The conclusion follows that the discharge of each stream is peculiar to itself and that all projects dependent upon the economical development of stream flow must be based on records of stream discharge collected with great care over a long series of years as near as possible to the location of the proposed project.

---

*Conclusions based on the flow of the Susquehanna River at Harrisburg for 25 years and an 11-year record of the Allegheny River at Kittanning, the drainage area in Pennsylvania above the two stations equalling 55 per cent of that of the State.

TABLE NO. 16.

Summary of Discharge in Second-feet per Square Mile, for the Year Ending September 30, 1915.

DELAWARE BASIN.

Station.	Drainage area.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Year.
Lackawaxen River at Hawley, ...	290	0.21	0.22	0.51	3.59	3.66	1.22	1.61	1.23	0.52	0.53	1.58	1.10	1.33
Wallenpaupack Creek at Wilsonville, ..	239	0.21	0.24	0.56	4.30	4.32	1.74	2.00	1.77	0.89	0.58	2.23	1.53	1.70
Delaware River at Port Jervis, N. Y.,	3,250	0.17	0.21	0.46	3.32	3.72	1.31	1.92	1.23	0.57	1.99	1.76	1.10	1.46
Bushkill Creek at Shoemakers, ...	115	0.17	0.28	1.04	4.71	5.61	2.37	1.70	2.07	1.07	0.83	2.19	0.77	1.90
Analomink Creek at Henryville, ...	35	0.37	0.43	1.20	8.31	6.11	4.26	2.06	2.48	1.31	0.49	....	....	....
Pocono Creek near Stroudsburg, ...	38	0.42	0.58	1.32	7.34	10.50	2.61	1.39	2.13	1.05	1.03	2.84	0.97	2.68
McMichaels Creek near Stroudsburg, ...	60	0.50	0.60	1.77	10.08	6.92	2.47	1.18	1.10	1.15	1.18	3.63	1.37	2.66
Lehigh River at Bethlehem, ...	1,235	0.31	0.36	0.79	4.28	4.78	1.78	1.21	1.29	0.86	0.66	2.63	1.09	1.67
Delaware River at Riegelsville, N. J.,	6,430	....	....	....	....	....	....	....	....	....	....	....	....	....
Schuylkill River at Schuylkill Haven, ..	127	0.47	0.50	1.10	5.24	5.29	1.76	0.83	0.79	0.64	1.10	4.17	1.76	1.97
Schuylkill River at Reading, ...	900	0.22	0.29	0.95	5.07	5.10	1.36	0.59	0.72	0.52	0.70	3.71	1.04	1.75
Perkiomen Creek at Graters Ford, ...	280	0.35	0.72	2.10	5.50	4.71	0.88	0.85	0.52	0.15	0.93	4.68	1.15	1.88
Schuylkill River at Conshohocken, ...	1,795	0.45	0.48	1.45	4.78	4.68	1.31	1.04	1.18	0.86	1.10	3.79	0.90	1.84
Darby Creek at Lansdowne, ...	35	0.83	1.40	2.31	3.37	3.94	2.06	1.74	1.83	1.31	1.20	2.31	1.17	1.96
Brandywine Creek at Chadds Ford, ...	285	0.43	0.50	1.18	3.47	3.82	1.47	1.10	1.22	1.19	1.05	3.72	0.88	1.67

TABLE NO. 17.

Summary of Discharge in Second-feet per Square Mile, for the Year Ending September 30, 1915.

SUSQUEHANNA BASIN.

Station.	Drainage area.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Year.
Towanda Creek at Monroeton, ...	218	0.11	0.20	0.36	5.32	5.00	1.06	1.11	0.80	0.21	6.33	4.52	1.53	2.21
Wyalusing Creek at Wyalusing, ...	214	0.13	0.17	0.39	5.42	3.68	0.67	0.91	0.92	0.22	3.28	2.11	0.36	1.52
Lackawanna River at Moosic, ...	265	0.34	0.33	0.42	2.64	3.48	0.87	1.24	1.31	0.59	0.61	1.54	....	....
North Branch Susquehanna River at Wilkes-Barre, ...	9,960	0.15	0.17	0.21	2.60	3.60	1.21	1.34	0.84	0.25	2.71	1.87	0.67	1.30
North Branch Susquehanna River at Danville, ...	11,300	0.19	0.21	0.24	2.93	3.81	1.26	1.33	0.96	0.37	2.54	2.04	0.75	1.39
West Branch Susquehanna River at Bower, ...	320	0.17	0.17	0.32	4.31	5.84	0.91	0.65	0.78	1.28	1.31	0.86	0.24	1.40
Clearfield Creek at Dimeling, ...	370	0.13	0.13	0.31	3.14	4.27	1.05	0.68	1.28	1.44	0.93	0.68	0.35	1.20
West Branch Susquehanna River at Renovo, ...	2,990	0.12	0.18	0.34	3.44	5.55	1.57	1.43	1.53	1.18	1.67	0.97	0.45	1.54
Bald Eagle Creek at Milesburg, ...	140	0.04	0.10	0.22	2.69	5.77	1.21	0.44	0.86	1.43	0.71	0.59	0.11	1.18
Spring Creek near Bellefonte, ...	145	1.24	1.30	1.26	1.70	3.59	2.14	1.46	1.51	1.57	1.50	1.33	....	......
Bald Eagle Creek at Beech Creek, ...	565	0.31	0.33	0.36	2.34	4.42	1.48	0.81	1.28	1.45	1.53	0.82	0.43	1.30
Pine Creek at Waterville, ...	750	0.14	0.27	0.29	3.17	4.48	1.24	2.16	1.12	0.35	1.85	0.74	0.59	1.37
Lycoming Creek near Trout Run, ...	185	0.22	0.30	0.25	3.90	4.65	1.18	1.66	1.31	0.44	3.23	1.94	0.55	1.64
West Branch Susquehanna River at Williamsport, ...	5,670	0.13	0.18	0.30	3.02	4.67	1.48	1.42	1.35	0.99	1.90	1.13	0.42	1.42
Raystown Branch Juniata River at Saxton, ...	790	0.20	0.20	0.26	2.09	4.95	0.96	0.43	1.38	2.98	0.40	1.08	0.39	1.28
Kishacoquillas Creek at Kulps, ...	190	0.27	0.33	0.31	2.18	4.19	1.59	0.88	1.25	1.30	1.14	1.02	0.86	1.28
Tuscarora Creek near Port Royal, ...	205	0.06	0.10	0.36	3.64	4.98	1.13	0.62	1.24	1.47	0.37	0.81	0.60	1.28
Juniata River at Newport, ...	3,380	0.21	0.21	0.38	2.40	4.79	1.29	0.60	1.15	2.10	0.59	0.79	0.46	1.25
Conodoguinet Creek at Brysons Bridge,	460	0.43	0.34	0.86	3.85	3.89	1.24	0.58	0.88	1.91	0.95	3.76	1.73	1.70
Susquehanna River at Harrisburg, ...	24,100	0.16	0.20	0.29	2.98	3.94	1.44	1.16	1.10	0.87	1.82	1.55	0.68	1.35
Yellow Breeches Creek at Olmsted's Mill, ...	223	0.61	0.63	0.70	2.91	3.47	1.84	1.06	1.11	1.70	0.74	2.57	2.15	1.62

TABLE NO. 18.

Summary of Discharge in Second-feet per Square Mile, for the Year Ending September 30, 1915.

OHIO BASIN.

Station.	Drainage area.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Year.
Kinzua Creek at Dewdrop, ...	171	0.37	0.57	0.57	2.34	5.39	1.35	2.09	1.64	0.92	2.48	1.19	0.77	1.64
Brokenstraw Creek at Youngsville, ...	290	0.18	0.51	0.88	1.84	4.66	0.52	0.62	1.48	0.27	1.61	1.35	0.43	1.20
Oil Creek at Rouseville, ...	330	0.21	0.28	0.86	2.51	5.15	0.82	0.92	1.69	0.52	1.78	2.53	0.64	1.49
French Creek at Kimmeytown, ...	190	0.40	1.85	2.41	3.25	6.63	1.28	1.49	1.51	0.41	2.36	3.81	1.97	2.28
Cussewago Creek near Meadville, ...	88	0.14	0.93	1.43	1.26	4.81	0.54	0.50	0.94	0.11	0.52	2.08	0.45	1.10
Sugar Creek at Wyattville, ...	160	0.31	0.39	0.56	2.18	3.54	0.69	0.59	1.10	0.34	2.32	2.78	0.72	1.29
Sandy Creek at Sandy Lake, ...	54	0.22	0.28	1.19	2.63	5.39	0.52	0.46	0.59	0.39	1.96	3.33	0.76	1.48
Clarion River at Clarion, ...	910	0.17	0.17	0.93	2.60	4.64	1.45	1.32	1.49	0.89	2.95	1.82	0.64	1.55
Red Bank Creek at St. Charles, ...	540	0.06	....	....	4.74	7.24	1.22	0.63	1.26	1.06	1.70	0.92	0.36	....
Allegheny River at Kittanning, ...	9,010	0.16	0.40	0.92	2.63	4.76	1.16	1.16	1.30	0.60	1.88	1.61	0.56	1.18
Crooked Creek at Hileman's Farm, ...	279	0.15	0.07	1.64	4.01	4.19	0.94	0.45	0.65	1.22	2.28	1.22	0.82	1.47
Stony Creek at Johnstown, ...	465	0.11	0.11	0.33	3.08	5.59	1.12	0.66	1.71	1.83	0.39	0.44	0.17	1.30
Black Lick Creek at Black Lick, ...	386	0.09	0.11	1.08	3.94	4.90	1.06	0.75	1.41	1.60	1.12	0.82	0.20	1.42
Kiskiminitas River at Avonmore, ...	1,720	0.18	0.18	1.02	3.52	5.06	1.23	0.77	1.75	1.68	0.75	0.66	0.26	1.42
Youghiogheny River at Connellsville, ..	1,320	0.14	0.17	1.40	4.18	5.60	1.45	1.32	2.48	1.80	0.42	0.46	0.47	1.66
Slippery Rock Creek at Wurtemburg, ..	400	0.14	0.12	1.76	3.12	4.92	0.98	0.60	0.50	0.84	1.18	1.45	0.42	1.34
Shenango River at Turnerville, ...	152	0.09	0.40	2.09	2.61	6.04	0.74	0.40	0.54	0.15	1.07	1.12	0.20	1.29
Little Shenango River at Greenville, ...	107	0.12	0.20	1.48	2.17	4.89	0.63	0.16	0.67	0.21	2.47	2.01	0.32	1.28
Pymatuning Creek below Orangeville, ..	170	0.06	0.21	1.70	3.72	7.25	0.72	0.27	0.46	0.22	0.82	0.40	0.26	1.34
Shenango River at Sharon, ...	611	0.10	0.20	1.11	1.59	4.03	0.59	0.30	0.43	0.24	0.87	0.92	0.25	0.88
Shenango River at New Castle, ...	797.4	0.11	0.24	1.13	1.70	4.34	0.62	0.35	0.43	0.28	0.84	1.06	0.28	0.95
Mahoning River at New Castle, ...	1,070	0.09	0.12	0.55	1.28	3.52	0.44	0.26	0.24	0.27	0.41	0.46	0.18	0.65
Beaver River at Newport, ...	2,125	0.08	0.13	0.73	1.60	4.12	0.54	0.31	0.31	0.27	0.62	0.87	0.21	0.82

COMPARISON OF RUN-OFF IN DIFFERENT SECTIONS OF PENNSYLVANIA.

The wide divergence shown in the yield of streams in different parts of Pennsylvania is mainly attributable to variation in rainfall, geology, topography and geographical location.

The following table was prepared in order to arrive at figures which could be considered as representative of the yearly run-off in different sections of the State, and the results were obtained by using the run-off data during the same period at the stations selected for comparison, thus putting all sections of the State on an equal basis.

TABLE NO. 19.

COMPARISON OF RUN-OFF IN SECOND-FEET PER SQUARE MILE OF VARIOUS RIVERS IN PENNSYLVANIA FOR THE PERIOD 1909-1913.

River and Station.	Drainage area above station.	Second-feet per square mile.	Depth in inches.
North Branch Susquehanna River—Wilkes-Barre,	9,960	1.20	16.28
Juniata River—Newport,	3,380	1.22	16.56
North Branch Susquehanna River—Danville,	11,300	1.26	17.16
Susquehanna River—Harrisburg,	24,100	1.38	18.70
Delaware River—Port Jervis, N. Y.,	3,250	1.63	22.07
Delaware River—Riegelsville, N. J.,	6,430	1.65	22.42
West Branch Susquehanna River—Williamsport,	5,670	1.67	22.66
West Branch Susquehanna River—Renovo,	2,990	1.79	24.24
Allegheny River—Kittanning,	9,010	1.96	26.64
Kiskiminitas River—Avonmore,	1,720	1.97	26.67
Black Lick Creek—Black Lick,	386	2.08	28.21
Youghiogheny River—Connellsville,	1,320	2.18	29.53
Youghiogheny River—Confluence,	435	2.72	36.82

The two extremes for this period are shown in the table by an average yearly run-off of 1.2 second-feet per square mile with a rainfall of over 35 inches along the North Branch Susquehanna River and 2.72 second-feet per square mile with a rainfall of over 49 inches along the Youghiogheny River, showing that the northeastern part of the State had the least run-off while the southwestern part had the greatest.

NEW STREAM GAGING STATIONS.

The hydrographic work of the Commission has been enlarged and extended during the year, eleven new stream gaging stations having been established, as shown by Table No. 20.

TABLE NO. 20.

STREAM GAGING STATIONS ESTABLISHED BETWEEN OCTOBER 1, 1914, AND SEPTEMBER 30, 1915.

Stream.	Location.
*Allegheny River,	Franklin, Venango County.
*Allegheny River,	Freeport, Armstrong County.
*Allegheny River,	Larabee, McKean County.
Aughwick Creek,	Pogue, Huntingdon County.
*Chartiers Creek,	Carnegie, Allegheny County.
*Connoquenessing Creek,	Hazen, Beaver County.
Frankstown Branch Juniata River,	Huntingdon (Smithfield Bridge), Huntingdon County.
*Monongahela River,	South Brownsville, Fayette County.
*Raccoon Creek,	Moffatt's Mill, Beaver County.
*South Fork Ten Mile Creek,	Pollack's Mill, Greene County.
*Youghiogheny River,	Sutersville, Westmoreland County.

*Established and maintained in co-operation with the U. S. Engineer Office in Pittsburgh.

For the proper study of the flood problem in the western part of the State, nine of the above new stations were established in co-operation with the U. S. Engineer Office in Pittsburgh. Under this co-operative agreement, the stations selected were agreed upon after a reconnaissance by an engineer from each office. The Water Supply Commission then supplied the necessary gages, while the U. S. Engineer Office put them in place, took the first discharge measurement and pays the observers' salaries; after being established by the U. S. Engineer Office, the stations were turned over, for operation and maintenance, to the Water Supply Commission to whom the observers report.

During the past year reports were received from 110 gaging stations, with 19 in the Delaware, 43 in the Susquehanna and 48 in the Ohio Basin.

ABANDONED STREAM GAGING STATIONS.

On account of unsatisfactory conditions prevailing at five gaging stations, the Commission has abandoned those on the Lackawaxen River at Rowlands, Analomink Creek at Henryville, Chest Creek at St. Lu, Mahoning Creek at Furnace Bridge and Turtle Creek at East Pittsburgh. The records collected by the U. S. Geological Survey in New York, West Virginia and Maryland, formerly published in the annual reports of this Commission and mentioned below, may be obtained on application to the U. S. Geological Survey, Washington, D. C. The only stations maintained by the Survey whose records are published in this report are the Delaware River at Port Jervis, N. Y., and at Riegelsville, N. J.

U. S. GEOLOGICAL SURVEY STATIONS.

When the Commission first started the accumulation of stream flow data, it included in its collection records taken at U. S. Geological Survey stations in West Virginia, Maryland and New York, because the streams flowing from these states into Pennsylvania were not gaged in this State. Since that time the gaging system in Pennsylvania has been extended and enlarged, thus doing away with the necessity of collecting records at stations outside the State.

An excellent gaging station has recently been established on the Monongahela River at South Brownsville, Pennsylvania, and the publication of the data at the West Virginia stations on the Monongahela watershed, collected by the U. S. Geological Survey, is now extraneous material and is not included in the report of this Commission. Under similar conditions, gaging stations have been established on the Allegheny River at Franklin and Larabee, and on the North Branch Susquehanna River at Towanda, making it unnecessary to receive the U. S. Geological Survey reports on the Allegheny River at Red House, N. Y., the Chemung River at Chemung, N. Y., the North Branch Susquehanna River at Conklin, N. Y., and the Chenango River at Chenango Forks, N. Y. Consequently, the stream flow data at these points are not included in this report.

Since the East and West Branches Delaware River are entirely outside of this State, and the Upper Delaware River is well gaged at Port Jervis, N. Y., the publication of the U. S. Geological Survey records of the East and West Branches Delaware River has been discontinued. The Commission has also discontinued the publication of the U. S. Geological Survey records taken on the Monocacy River at Frederick, Md.

GAGING STATION AT HUNTINGDON.

In the 1911 to 1914 reports, inclusive, of the Water Supply Commission, complete discharge data at this station have been published from May 1, 1895, to September 30, 1914. For reasons mentioned below, the published discharges at this point are not accurate and the publication of further discharge at the Fourth Street Bridge has been temporarily discontinued. On September 29, 1915, the Commission placed a standard chain gage on the Smithfield Bridge to supplement the gage at the Fourth Street Bridge. An effort will be made to determine a relation between the gage heights at each bridge and thus correct the published discharge data at Huntingdon.

The drainage area at Fourth Street Bridge is dependent on the stages in the river and Crooked Creek, ranging from 845 to 870 square miles. In normal stages Crooked Creek enters the river one-quarter mile below the bridge, but during floods the two streams combine at and above the bridge. The discharge measurements, from which the rating curve was constructed, were made at the Smithfield Bridge, 2,000 feet above the gage on the Fourth Street Bridge. At the Smithfield Bridge the drainage area is constant and, by taking gage heights as well as discharge measurements at this point, a new discharge curve will be determined.

Where surface discharge measurements were taken, the depths were computed from soundings of measurements taken at lower stages, and, because the fluctuation in stage at the two bridges differs, the computed depths in some cases were inaccurate so that the measurements as computed were erroneous. These measurements, when plotted, produced an inaccurate discharge curve and the discharges will be corrected when the relation curve between the two gages has been established.

INSPECTION TRIPS AND NEW DISCHARGE CURVES.

Each gaging station has been visited once or more during the year and 78 discharge measurements made in the Delaware Basin, 102 in the Susquehanna Basin and 184 in the Ohio Basin. An unusually large number were made in the winter months of January and February when the streams were uncommonly high and free from ice. By carefully following the stream stages by means of telegraph and telephone, duplication of measurements at the same gage heights was avoided, with the result that points on the discharge curves were so distributed as to make it possible to establish rating curves and to determine the daily discharges from date of establishment for 11 additional stations. These stations are located on the Schuylkill River at Schuylkill Haven and Conshohocken, Perkiomen Creek at Graters Ford, Darby Creek at Lansdowne, Brandywine Creek at Chadds Ford, Towanda Creek at Monroeton, Lackawanna River at Moosic, Clearfield Creek at Dimeling, Lycoming Creek near Trout Run, Sandy Creek at Sandy Lake and Stony Creek at Johnstown.

DESCRIPTIONS OF BASINS.

Descriptions of basins published in the 1910-11, 1912, 1913 and 1914 reports are not included in this report. The only descriptions of basins published in this report are for those streams upon which there were no gaging stations previous to October 1, 1914; these are Chartiers, South Fork Ten Mile, Raccoon and Aughwick creeks, and Monongahela and Beaver rivers.

DROUGHT OF 1914.

One of the driest periods in the history of stream discharge in Pennsylvania occurred during the late summer and fall of 1914. The flow in many streams approached, and in some cases fell below, that recorded during the dry seasons of 1908-09-10. The drought seriously affected domestic and industrial water supplies and the operation of water power plants. It was general in its effect over the State, although more pronounced in the anthracite coal regions, where domestic service was restricted, mines closed down and water hauled in cars.

A description of the drought in the three primary drainage basins in the State is given below.

DELAWARE BASIN.

In the Delaware Basin there was no rain of any consequence from August 31, 1914, to October 15, 1914, only 0.32 inch falling during September. On October 16, 1914, over an inch occurred and again on November 15, 1914, over 2 inches fell, these being the only effective rains until the end of the first week in December, 1914, when a succession of heavy rains occurred.

During September, 1914, streams in the Delaware Basin drew heavily on the ground water, Brandywine Creek, for example, running off 125 per cent and Pocono yielding 160 per cent of the rainfall for the month. This very unusual condition for that time of the year was due, not to the fact that the run-off was extraordinarily high, but because the precipitation was extremely light, combined with a good ground water supply from which to draw. Illustrating the latter condition, in the middle of May, 1914, the spring rains left the ground in a saturated condition, and, although the top soil became dry enough to check crop growth in June, 1914, the water supplies were not materially affected. East of the mountains there was a moderate excess of rainfall for July, 1914, but there was a deficiency for August, 1914, the effects of which, combined with the low September rainfall, appeared in the flow of the streams in September, 1914.

Usually it is only in the late winter and early spring that the run-off is over 100 per cent of the precipitation and this is commonly due to high rate of flow rather than a low rate of precipitation. For the period under discussion then, the opposite condition existed from that which usually prevails when the per cent of run-off to precipitation is high. In the Delaware Basin, the average September yield is 10 to 30 per cent of the precipitation, while for each of the three succeeding months, it is usually 30 to 45 per cent. During the months of October, November and December, 1914, about 25 per cent of the precipitation found its way into the streams. The drought was not effectively broken until the end of the first week in December, 1914, and in this month almost 6 inches of rain fell.

NORTH BRANCH SUSQUEHANNA AND WEST BRANCH SUSQUEHANNA BASINS.

During the month of September, 1914, the streams of the Susquehanna Basin drew heavily on the ground water supply, Pine Creek, for example, yielding over 101 per cent of the rainfall for the month; the average yield for the Susquehanna Basin for September is about 20 per cent of the precipitation.

During the months of October, November and December, 1914, about 10 per cent of the precipitation over the basins of both the North and West branches found its way into the streams, as against an ordinary average of about 40 per cent for this period. During these three months the precipitation in the West Branch was over 9 inches, while 6.52 inches fell in the North Branch watershed. There was a deficiency during October and November, 1914, and an excess of precipitation in December, 1914, when almost as much rain fell as in the two previous months. On account of this unequal distribution, the rainfall of 9.00 and 6.52 inches was not effective in producing a large run-off. The drought was not effectively broken until the first week in December, 1914, during which month 4 inches of rain fell over the West Branch and 3.68 inches over the North Branch basins.

SUMMARY OF SUSQUEHANNA BASIN CONDITIONS.

The run-off of the Susquehanna River at Harrisburg, with the rainfall records of the stations in the Susquehanna watershed above this point, indicate the average character of the drought over central Pennsylvania. The high percentage of run-off to rainfall, 38.8 per cent for the month of September, 1914, shows that the streams drew heavily on the ground water supply, since this percentage is twice the September average. For the next three months about 10 per cent of the precipitation found its way into the streams while the average relation of run-off to precipitation for these months varies between 30 and 40 per cent.

OHIO BASIN.

In the Ohio Basin there was practically no rain from the first part of September, 1914, to the middle of October, 1914, when about 1.7 inches fell, although the rains in the western part of the State were scattered more during October and November, 1914, than in the central and eastern parts. It was not until the middle of November, 1914, that the next general rain occurred and then less than an inch fell. During the first week of December, 1914, a succession of heavy rains occurred and the precipitation for that month was 4.3 inches, while that for the month of January, 1915, was 4.5 inches.

In the Ohio Basin during the months of August, September and October, 1914, the flow of the streams was unusually low and an average of only 8.7 per cent of the precipitation during this period ran off. This was a far lower percentage than that found in the middle and eastern portions of the State and, during this time, some of the streams in the Ohio Basin in Pennsylvania attained lower stages than during the drought of 1908-09-10. Two of the larger streams in the Allegheny Basin on which these low stages were recorded are French Creek and Clarion River, with drainage areas of 1,250 and 1,230 square miles, respectively. In contrast to the streams in the Allegheny Basin, the Youghiogheny River and its tributaries did not fall as low as in the drought of 1908-09-10.

The low yield of the western streams as compared with those in the central and eastern part of the State was probably due to a shortage of 50 per cent of rainfall west of the mountains in July, 1914, while east of the mountains there was a moderate excess. July, 1914, was followed by an unusually warm August, while the rainfall over the whole State was less than the August average, although the greatest deficiency occurred in the east. Following these conditions, the drought became severe in September, October and November, 1914.

During November and December, 1914, there was a gradual increase in the percentage of run-off to precipitation in the Ohio Basin and the ground was fully replenished in January, 1915, when 68 per cent of the precipitation ran off.

BEHAVIOR OF LIMESTONE STREAMS DURING DROUGHT.

As illustrating the difference in yield between streams draining limestone and non-limestone areas during times of drought, a comparison is given of Spring and Bald Eagle creeks, in Centre County, whose drainage areas adjoin and are practically of the same size above the mouth of Spring Creek, near which point the Commission maintains gaging stations on both streams.

TABLE NO. 21.

COMPARISON OF LIMESTONE AND NON-LIMESTONE YIELDS; PER CENT OF YIELD TO PRECIPITATION.

Month.	Spring Creek (Limestone). (Drainage area 145 sq. mi.)		Bald Eagle Creek. (Drainage area 140 sq. mi.†)	
	1911-1914.	1914.	1911-1914.	1914.
September,	(48*) 279	971	24	14
October,	58	60	37	2
November,	92	118	44	9
December,	84	45	54	8
January, 1915,	100	43	88	68

Note:—*Does not include 1914. †At Milesburg.

The table indicates that Spring Creek, a limestone stream, yielded nearly ten times the precipitation over its watershed during September, 1914, 60 per cent during October, 1914, 118 per cent during November, 1914, and 45 per cent during December, 1914, while the yield from Bald Eagle Creek was very low, varying between two and four-

h.

		Ohio Basin.								
nna River at rrisburg.		Clarion River at Clarion.			Allegheny River at Kittanning.			Turtle Creek at East Pittsburgh.		
Precipitation depth in inches.	Per cent. of run-off to precipitation.	Run-off depth in inches.	Precipitation depth in inches.	Per cent. of run-off to precipitation.	Run-off depth in inches.	Precipitation depth in inches.	Per cent. of run-off to precipitation.	Run-off depth in inches.	Precipitation depth in inches.	Per cent. of run-off to precipitation.
3.80	12.2	0.247	4.60	5.4	0.189	5.06	3.7	0.390	5.22	7.5
0.84	38.8	0.294	1.49	19.7	0.241	1.63	14.8	0.284	1.68	16.9
2.30	8.0	0.192	2.57	7.5	0.184	2.54	7.2	0.278	2.77	10.0
1.59	14.3	0.198	1.85	13.7	0.449	1.81	24.8	0.178	1.17	15.2
3.99	8.4	0.819	4.46	18.4	1.395	4.33	32.2	2.004	4.28	46.8
5.79	59.3	2.851	4.45	64.1	3.327	4.65	71.6	2.965	4.36	68.0

⁂

APPENDIX

HYDROGRAPHIC DATA

FOR

1914-15

CHANGE OF YEAR.

Previous to 1914, it was the custom for computations of stream flow to extend from January to December, inclusive; it has been decided, however, to change the ending of the stream gaging year from December 31 to September 30, because:

1. In Pennsylvania the draft period usually ends and the storage period begins about the end of September, as shown in a representative manner by the flow for a long period of years of the Susquehanna River at Harrisburg, where the drainage area is 24,100 square miles, a section equal to 53 per cent. of the total area of the State.
2. By completing the computations before the end of the calendar year the annual reports can be published and distributed earlier.
3. The annual computations of the records can be completed in December which will give opportunity for securing a large number of measurements of stream flow under ice cover. These measurements will furnish exceptionally valuable information since the flow of the streams during frozen periods is an uncertain quantity, requiring approximations of the probable discharge from climatological records and from the flow of streams having similar physical characteristics.
4. The semi-annual gage inspection trips can be made during periods when discharge measurements can always be made and when levels can be run to ascertain the slope of the water surface at each gaging station in order to secure further data for the determination of the coefficient of roughness. A knowledge of this coefficient is essential in calculations necessary for action on applications for the construction of bridges and other encroachments as well as being of importance in other engineering studies.
5. It is in accord with the practice of the U. S. Geological Survey and it is desirable that there should be conformity in the methods pursued by the two organizations.

EXPLANATION OF TERMS USED IN APPENDIX.

The volume of water flowing in a stream is expressed in various terms which may be divided into two groups:

(1) Those which represent a rate of flow; as, second-feet, gallons per minute, and run-off in second-feet per square mile, and (2) those which represent the actual quantity of water; as, run-off in depth in inches. The units used in this series of reports are second-feet, second feet per square mile and run-off in inches.

"Second-feet" is an abbreviation for cubic foot per second and is the unit for the rate of discharge of water in a stream 1 foot wide, 1 foot deep, flowing 1 foot per second. It is generally used as a fundamental unit from which others are computed by the use of factors given in the table of equivalents below.

"Second-feet per square mile" is the average number of cubic feet of water flowing from each square mile of area drained, on the assumption that the run-off is distributed uniformly in time and area.

"Run-off in inches" is the depth to which the drainage area would be covered if all the water flowing from it in a given period were conserved and uniformly distributed on the surface. It is used for comparing run-off with rainfall, which is usually expressed in depth in inches.

"Gage height" is a term used to indicate the fluctuating stages of a stream at a particular point, with reference to an established datum which does not change. Gage height has no reference to the depth of water but is merely the elevation of the water surface above a fixed point, while the zero of gage heights is generally below the minimum stage. For example, at Wilkes-Barre, on the North Branch Susquehanna River, when the gage height is 4.35 feet, the maximum depth of water in the river at that point is 18.5 feet. Where elevations are given it is understood they refer in feet to mean sea level, unless otherwise specified.

"Maximum from hydrograph" is the gage height obtained by drawing a curve or hydrograph through the observed gage readings, the crest of the curve being used as the maximum gage height. Previous to this time, the maximum gage height actually read was used and this was not always observed at times of maximum stage.

CONVENIENT EQUIVALENTS.

The following is a list of convenient equivalents for use in hydraulic computations:

1 second-foot equals 7.48 U. S. gallons per second; equals 448.8 gallons per minute; equals 646,272 gallons for one day.

1 second-foot equals 6.23 British Imperial Gallons per second.

1 second-foot for one year covers 1 square mile 1.131 feet or 13.57 inches deep.

1 second-foot for one year equals 31,536,000 cubic feet.

1 second-foot for one day covers 1 square mile 0.03719 inch deep.

1 second-foot for one 28 day month covers 1 square mile 1.041 inches deep.

1 second-foot for one 29 day month covers 1 square mile 1.079 inches deep.

1 second-foot for one 30 day month covers 1 square mile 1.116 inches deep.

1 second-foot for one 31 day month covers 1 square mile 1.153 inches deep.

1 foot per second equals 0.68 miles per hour.

100 United States gallons per minute equals 0.223 second-feet.

1,000,000 United States gallons per day equals 1.55 second-feet.

1 inch deep on 1 square mile equals 2,323,200 cubic feet.

1 mile-foot is 12 inches depth on one square mile and equals 27,878,400 cubic feet.

1 cubic foot equals 7.48 gallons.

1 cubic foot of water weighs 62.5 pounds.

1 horse-power equals 550 foot-pounds per second.

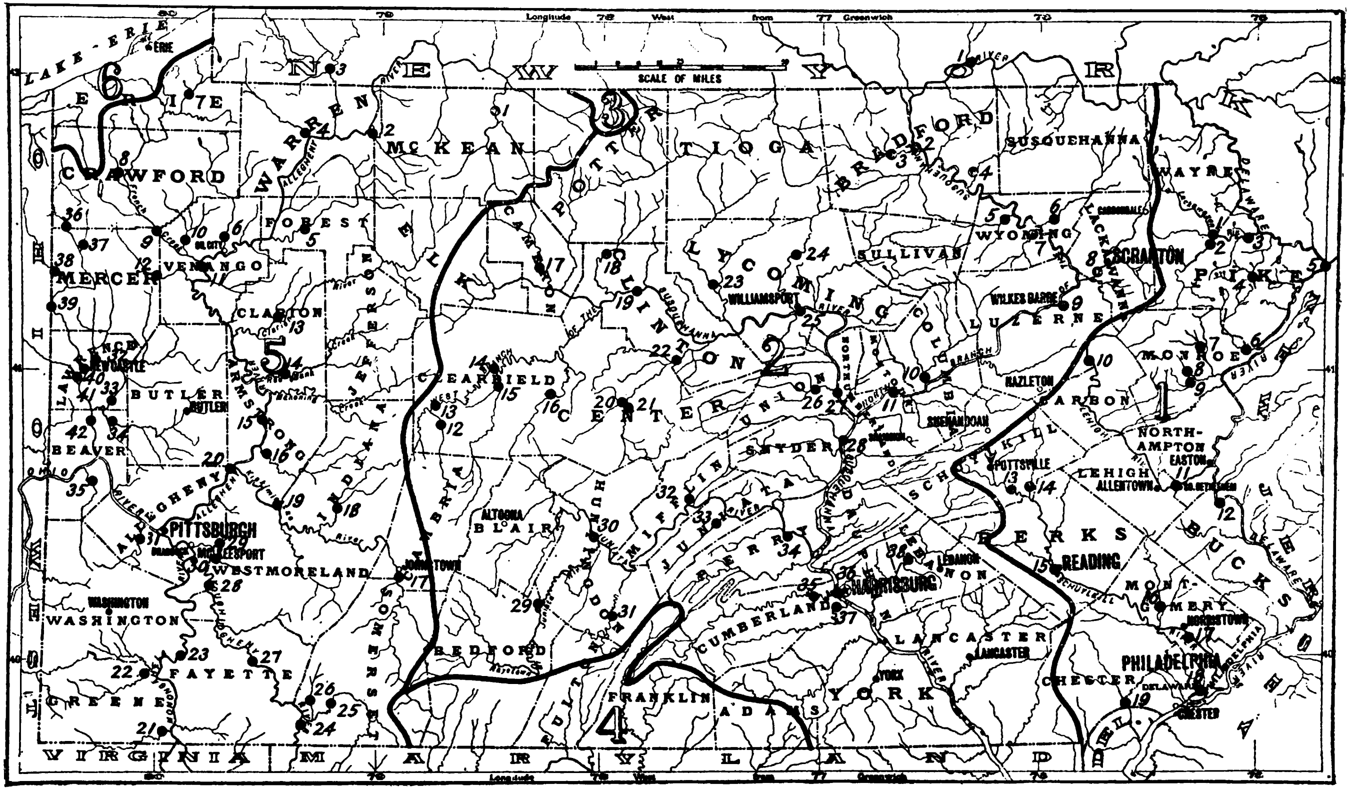
1 horse-power equals 746 watts; 1 kilowatt equals 1.34056 H. P.

1 horse-power equals 1 second-foot falling 8.80 feet. 100 per cent. efficiency.

To calculate water power quickly $\frac{\text{Sec. ft.} \times \text{fall in feet}}{11}$ = net horse-power on shaft of water wheel realizing 80 per cent. of theoretical power.

WATER SUPPLY COMMISSION OF PENNSYLVANIA

MAP SHOWING LOCATION OF GAGING STATIONS—1914-1915



Legend,—Drainage Basins—(1) Delaware Basin, (2) Susquehanna Basin, (3) Genesee Basin, (4) Potomac Basin, (5) Ohio Basin, (6) Erie Basin.

DELAWARE BASIN

DELAWARE BASIN—STATION NO. 1.

LACKAWAXEN RIVER AT HAWLEY, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge about 2,000 feet above the mouth of Wallenpaupack Creek at Hawley, Wayne County.

RECORDS AVAILABLE—Discharge complete from July 2, 1908, to July 31, 1913, and from October 1, 1913, to September 30, 1915. For other records on this river see Lackawaxen River at Rowlands.

DRAINAGE AREA—290 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the upstream side of the bridge and is read thrice daily by J. S. Pennell.

CHANNEL—The right bank overflows in extreme stages, the left bank is high and does not overflow, and the bed is composed of gravel and rock.

REMARKS—Intermittent storage upstream at Honesdale affects the flow during low stages.

DISCHARGE MEASUREMENT OF LACKAWAXEN RIVER AT HAWLEY, WAYNE COUNTY, PA.

(Drainage area 290 square miles.

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec. ft.	
17	Aug. 18	Reckord & Gough, ...	178	1.27	190	Surface and 0.6 method.

DISCHARGE TABLE FOR LACKAWAXEN RIVER AT HAWLEY, WAYNE COUNTY, PA., FROM JANUARY 1, 1912.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
0.00	26	.50	222	3.00	678	.50	1410	6.00	2288
.10	32	.60	244	.10	720	.60	1464	.10	2352
.20	38	.70	266	.20	764	.70	1520	.20	2416
.30	46	.80	290	.30	808	.80	1576	.30	2482
.40	54	.90	314	.40	854	.90	1632	.40	2548
.50	64	2.00	340	.50	902	5.00	1690	.50	2616
.60	74	.10	368	.60	950	.10	1748	.60	2684
.70	86	.20	396	.70	998	.20	1806	.70	2754
.80	100	.30	426	.80	1048	.30	1864	.80	2824
.90	114	.40	458	.90	1098	.40	1922	.90	2894
1.00	128	.50	490	4.00	1148	.50	1982	7.00	2966
.10	144	.60	524	.10	1198	.60	2042		
.20	162	.70	560	.20	1250	.70	2102		
.30	182	.80	598	.30	1302	.80	2164		
.40	202	.90	638	.40	1356	.90	2226		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF LACKAWAXEN RIVER AT HAWLEY, WAYNE COUNTY PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.31	‖0.38	0.50	....	3.82	3.38	1.45	2.05	1.63	0.74	0.70	2.74
2,	0.28	0.38	0.55	....	4.37	3.24	1.34	1.70	1.59	1.09	0.83	2.28
3,	0.21	0.40	0.50	....	4.06	2.85	1.27	1.75	1.53	1.11	1.13	2.00
4,	‖0.28	0.43	0.47	....	3.84	2.89	1.27	1.65	1.45	1.07	3.62	1.71
5,	0.36	0.22	0.41	....	3.47	2.45	1.54	1.96	1.39	0.98	4.30	1.54
6,	0.40	0.31	0.30	....	3.34	2.45	1.74	2.00	1.23	0.97	3.36	1.47
7,	0.42	0.26	0.68	....	3.29	2.29	1.82	1.76	1.23	0.67	3.02	1.79
8,	0.30	‖0.35	1.67	4.57	3.32	2.17	2.10	1.73	1.06	1.13	2.73	2.38
9,	0.23	0.44	2.08	4.51	2.91	1.95	2.09	1.76	0.97	2.33	2.95	1.89
10,	0.24	0.46	1.70	3.71	2.92	1.90	2.14	1.50	0.87	1.56	2.74	1.65
11,	‖0.27	0.42	1.55	3.01	2.81	1.85	5.02	1.49	0.80	1.35	2.53	1.43
12,	0.30	0.43	1.22	3.09	2.44	1.75	4.84	‖1.58	0.79	1.29	2.36	‖1.36
13,	0.35	0.27	0.90	6.36	2.62	1.59	4.10	1.68	0.80	1.35	2.11	1.30
14,	0.39	0.38	1.61	5.96	2.61	2.15	3.33	1.67	0.82	1.22	1.95	1.16
15,	0.37	0.09	1.57	4.91	3.87	1.85	3.15	1.44	0.90	1.16	1.67	1.03
16,	0.66	0.87	1.80	4.21	5.37	1.79	2.79	1.27	1.13	1.09	1.63	0.97
17,	1.24	1.02	1.78	3.74	4.44	1.72	2.55	1.53	2.00	0.92	1.56	0.93
18,	0.67	0.81	*	4.77	3.54	1.58	2.32	1.63	1.87	0.93	1.27	1.20
19,	0.84	0.81	....	6.74	3.21	1.54	2.19	1.45	1.43	0.78	1.16	2.47
20,	0.70	0.81	....	5.96	3.04	1.57	2.12	1.33	1.15	0.87	1.07	2.76
21,	0.65	0.55	....	4.89	2.94	1.67	1.81	1.36	1.03	0.87	1.01	2.96
22,	0.65	0.24	....	3.86	3.04	1.56	1.80	3.62	0.90	1.10	2.68	3.26
23,	0.59	0.53	....	3.71	3.27	1.59	1.68	3.50	1.16	0.95	2.97	2.49
24,	0.46	0.50	....	3.67	4.64	1.69	1.79	3.12	1.04	0.65	2.67	2.11
25,	0.26	0.40	....	3.64	†6.99	1.80	1.85	2.93	0.99	1.35	2.72	1.89
26,	0.54	0.32	....	3.22	5.89	1.85	1.62	2.73	0.81	1.43	2.37	1.70
27,	0.39	0.50	....	2.99	4.74	1.80	1.55	2.65	0.56	1.44	2.15	1.96
28,	0.34	0.47	....	2.84	3.89	‖1.70	1.72	2.37	0.66	1.40	1.87	1.67
29,	0.39	0.29	....	2.71	....	1.59	1.94	2.13	0.43	1.24	2.07	1.47
30,	0.37	0.58	....	2.57	....	1.47	2.35	1.85	0.44	0.97	2.96	1.37
31,	0.37	....	....	2.49	....	1.44	....	1.72	....	0.86	3.26	....

Notes.—*River frozen December 18, 1914, to 4:20 p. m., January 7, 1915, inclusive. †Maximum 7.70 ft. at 3 a. m., from hydrograph. ‖Interpolated.

DAILY DISCHARGE, IN SECOND-FEET, OF LACKAWAXEN RIVER AT HAWLEY, WAYNE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	47	52	64	119	1060	845	212	354	251	92	86	575
2,	44	52	69	119	1340	782	190	266	242	142	104	420
3,	39	54	64	119	1180	618	176	278	229	146	149	340
4,	44	57	61	119	1070	634	176	255	212	139	960	268
5,	51	40	55	119	888	474	231	330	200	125	1300	231
6,	54	47	46	119	826	474	276	340	168	124	836	216
7,	56	43	84	1580	804	423	295	280	168	82	686	288
8,	46	50	259	1450	817	358	368	273	138	158	571	452
9,	40	58	362	1420	642	327	365	280	124	436	650	312
10,	41	60	266	1000	646	314	379	222	110	235	575	255
11,	44	56	233	682	602	382	1700	220	100	192	500	208
12,	46	57	166	716	471	278	1600	240	99	180	445	194
13,	50	44	114	2520	581	242	1200	262	100	192	371	182
14,	53	52	246	2260	528	382	822	259	109	166	327	155
15,	52	31	237	1640	1080	302	742	210	114	155	259	133
16,	81	110	290	1260	1900	288	594	176	149	142	251	124
17,	170	131	285	1020	1380	271	507	229	340	117	235	118
18,	82	101	*122	1560	921	240	432	251	307	121	176	162
19,	106	101	122	2780	768	231	393	212	208	97	155	480
20,	86	101	122	2260	695	237	374	188	158	110	139	583
21,	80	69	122	1630	654	259	292	194	133	110	130	662
22,	80	41	122	1080	695	235	290	960	114	144	535	790
23,	73	67	122	1000	795	242	262	902	155	121	666	487
24,	60	64	122	984	1490	264	288	729	134	80	549	371
25,	43	54	122	969	†2960	290	302	650	127	192	568	312
26,	68	48	122	778	2220	302	248	571	101	208	448	266
27,	53	64	122	674	1540	290	233	542	70	210	382	330
28,	49	61	122	614	1090	266	271	448	81	202	307	259
29,	53	45	122	564	....	242	323	376	57	170	360	216
30,	62	72	122	514	....	216	442	302	58	124	662	196
31,	52	....	122	487	....	210	....	271	....	108	790	....

Notes.—*River frozen December 18, 1914, to 4:20 p. m., January 7, 1915, inclusive, and discharge estimated from Lackawanna River at Moosic, except January 7, 1915, when free flow discharge has been used. †Maximum=3460 sec.-ft. Discharge above 2966 sec.-ft. is estimated.

ESTIMATED MONTHLY DISCHARGE OF LACKAWAXEN RIVER AT HAWLEY, WAYNE COUNTY, PA.

(Drainage area [illegible]0 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	170	39	61	0.21	0.24
November,	131	31	63	0.22	0.24
December,	362	....	149	0.51	0.59
1915.					
January,	2780	....	1040	3.59	4.14
February,	*3460	471	1060	3.66	3.81
March,	845	210	353	1.22	1.41
April,	1700	176	466	1.61	1.80
May,	960	176	357	1.23	1.42
June,	340	57	152	0.52	0.58
July,	436	80	155	0.53	0.61
August,	1300	86	457	1.58	1.82
September,	790	118	320	1.10	1.23
The year,	*3460	31	386	1.33	17.89

Note.—River frozen December 18, 1914, to 4:20 p. m., January 7, 1915, inclusive, and discharge estimated from Lackawanna River at Moosic, except January 7, 1915, when free flow discharge has been used. *Estimated.

DELAWARE BASIN—STATION NO. 2.

WALLENPAUPACK CREEK AT WILSONVILLE, PA.

DESCRIPTION OF STATION.

LOCATION—At two span, steel, highway bridge at Wilsonville, 1½ miles above the mouth at Hawley, Wayne County.

RECORDS AVAILABLE—Discharge measurements 1908 to 1915, inclusive; gage heights 1909 to 1913, and daily and monthly discharges from January 1, 1910, to September 30, 1915, inclusive, except for intermittent periods.

DRAINAGE AREA—239 square miles.

GAGE—A vertical staff gage, whose elevation of zero is 1,146.78 feet above mean sea level, is located on the downstream face of the pier. A Barrett and Lawrence automatic gage, referred to same datum as the staff gage, is located on the top of the pier, and supplements the readings taken from the staff gage. Both gages are read by an employe of L. B. Stillwell, Consulting Engineers, New York City.

CHANNEL—The right bank overflows at extreme stages, the left bank is high and does not overflow, and the bed is composed of solid rock.

REMARKS—There is a low log weir located approximately 70 feet downstream from the gage. Thirty-five feet above the gage is a 3 foot concrete dam, upon which flashboards are placed during periods of low flow in order to provide storage for the operation of the silk mills below.

The following record has been compiled and computed from data furnished by L. B. Stillwell, Consulting Engineers, New York City, who have made a comprehensive study of this stream, and supersedes all previous published discharge.

DISCHARGE MEASUREMENTS OF WALLENPAUPACK CREEK AT WILSONVILLE, WAYNE COUNTY, PA.

(Drainage area 239 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
			Sq. ft.	Feet.	Sec. ft.	
	1908.					
1	July 3	Grant,	217	1.00	186	
	1909.					
2	May 6	Grant,	417	2.70	1588	
3	June 4	Grant,	213	1.12	211	
4	June 24	Grant,	213	1.08	202	
	1910.					
5	May 14	Langenheim,	239	1.40	391	
	1912.					
6	May 10	Putnam & Ryder,	324	1.99	934	Vertical velocity method.
7	May 22	LaBar,	247	1.38	474	
8	May 28	LaBar,	213	1.06	266	
	1913.					
9	March 28	LaBar,	611	4.10	4068	Doubtful.
10	May 7	Colt,	252	1.48	408	
11	May 19	LaBar,	196	1.11	188	
	1914.					
12	March 25	LaBar,	....	2.00	457	
13	April 6	LaBar,	....	2.85	1209	
14	May 22	Hosmer,	293	1.80	362	0.6 method.
15	June 5	Hosmer & Wilson,	276	1.63	275	0.6 method.
16	June 24	Hosmer,	215	1.22	106	0.6 method.
17	Sept. 22	Taylor & Gough,	189	1.05	72	0.6 method.
	1915.					
18	Aug. 16	Putnam,	240	1.38	394	
19	Aug. 18	Reckord & Gough,	223	1.23	207	0.6 method.

DAILY DISCHARGE, IN SECOND-FEET, OF WALLENPAUPACK CREEK AT WILSONVILLE, WAYNE COUNTY, PA., FOR 1910.

	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.
1,	219	464	2760	464	1330	330	300
2,	150	464	3560	450	1150	324	189
3,	60	450	3240	392	990	306	172
4,	55	420	2770	330	880	300	167
5,	111	392	2200	282	790	271	146
6,	76	464	2070	330	660	300	130
7,	94	392	2070	318	580	392	120
8,	111	330	2540	428	464	318	122
9,	194	330	2260	406	428	300	122
10,	172	392	1650	319	464	244	111
11,	130	392	1380	300	392	320	163
12,	94	392	1222	300	392	435	130
13,	94	330	970	306	392	457	111
14,	94	271	970	300	360	406	94
15,	94	219	970	282	300	324	90
16,	130	330	970	244	219	324	76
17,	94	392	790	224	194	450	....
18,	111	392	660	379	172	464	....
19,	172	330	540	970	172	464	....
20,	172	330	580	1480	219	435	....
21,	229	392	620	1297	219	379	....
22,	826	464	790	1110	229	294	....
23,	3160	540	970	970	219	239	....
24,	2140	745	925	826	219	219	....
25,	1380	700	844	880	379	209	....
26,	1380	700	844	3310	572	180	....
27,	880	790	844	3000	684	163	....
28,	700	736	700	2000	588	336	....
29,	620	....	620	1540	492	464	....
30,	556	....	540	1360	392	360	....
31,	464	....	500	....	360	....	....

Note.—July 17 to December 31, 1910, records not used due to flashboards on dam below gage.

DAILY DISCHARGE, IN SECOND-FEET, OF WALLENPAUPACK CREEK AT WILSONVILLE, WAYNE COUNTY, PA., FOR 1911.

DAY.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.	OCT.	NOV.	DEC.
1,	1220	665	580	1380	710	200	160	80	860	390	420	350
2,	1220	625	560	1200	710	250	130	70	810	520	410	350
3,	1925	775	500	1070	860	200	130	50	660	700	380	320
4,	1900	760	460	960	670	170	150	40	470	590	350	300
5,	2070	750	400	730	630	150	180	40	300	440	350	300
6,	2135	790	330	1020	540	210	170	30	260	390	310	320
7,	2070	705	300	1580	370	330	140	80	430	420	430	320
8,	1865	705	290	1520	370	260	130	80	370	480	520	280
9,	1710	745	290	1370	350	210	120	60	420	440	390	320
10,	1480	580	330	1210	340	150	120	50	480	360	360	400
11,	1360	600	510	1100	300	150	100	50	430	340	310	360
12,	1319	625	540	1000	300	750	80	20	520	430	270	360
13,	1220	665	660	930	350	2020	80	20	460	360	420	350
14,	975	665	880	910	290	2050	110	10	370	320	480	330
15,	975	705	920	930	270	2020	90	10	310	300	360	320
16,	1000	750	1120	930	240	1630	80	10	510	300	360	480
17,	1170	768	1100	890	240	1400	80	10	290	240	340	650
18,	1125	768	1050	930	250	1210	120	10	270	270	390	740
19,	1025	768	910	890	220	980	120	10	250	540	620	650
20,	975	750	900	910	200	730	100	10	240	620	620	490
21,	975	725	910	1380	200	570	110	10	240	620	570	360
22,	880	665	1020	1690	220	510	130	10	200	700	510	420
23,	880	625	880	1710	210	350	120	10	170	800	450	550
24,	880	615	830	1600	180	320	120	10	190	950	420	700
25,	805	575	840	1460	180	430	150	10	170	990	480	700
26,	775	355	780	1150	170	400	120	10	180	900	430	740
27,	750	405	750	920	150	340	120	10	190	740	390	700
28,	760	610	1010	840	140	290	120	10	190	640	360	720
29,	775	....	1580	800	140	240	120	550	190	590	360	700
30,	812	....	1540	670	140	200	120	730	380	540	360	480
31,	775	....	1490	....	140	....	100	900	....	450	....	490

Note.—August 16 to 29, 1911, flashboards on dam below gage and discharge estimated.

DAILY DISCHARGE, IN SECOND FEET, OF WALLENPAUPACK CREEK AT WILSONVILLE, WAYNE COUNTY, PA., FOR 1912.

DAY.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	OCT.	NOV.	DEC.
1, ...	500	200	560	1470	1135	260	*290	600	345
2, ...	475	190	480	1420	1040	305	*290	595	345
3, ...	420	190	375	1470	900	345	*290	510	930
4, ...	350	175	285	1610	840	390	*290	430	1310
5, ...	370	170	250	1300	750	320	290	410	1240
6, ...	292	175	240	1125	680	295	270	370	1075
7, ...	190	180	240	1090	620	300	250	350	1065
8, ...	240	175	275	1085	670	275	240	690	1015
9, ...	240	170	420	1040	850	230	210	820	970
10, ...	270	170	420	1660	932	180	210	750	730
11, ...	260	160	420	920	860	160	260	660	620
12, ...	240	150	420	810	740	150	260	595	560
13, ...	240	145	550	760	630	145	260	530	490
14, ...	240	130	1185	720	620	140	260	530	450
15, ...	240	120	1280	710	580	140	230	510	450
16, ...	240	130	1960	700	550	140	210	470	450
17, ...	240	130	1790	700	630	135	190	420	380
18, ...	258	180	1640	720	750	130	160	375	380
19, ...	260	145	1310	990	690	125	150	340	440
20, ...	270	175	1250	1230	640	120	170	340	760
21, ...	300	190	1210	1085	520	120	170	340	910
22, ...	330	250	1040	920	480	100	185	400	810
23, ...	300	440	880	810	440	90	490	360	720
24, ...	292	430	910	750	410	90	910	440	620
25, ...	240	460	932	720	400	80	2030	520	640
26, ...	210	480	890	710	340	80	2280	560	460
27, ...	200	510	800	690	300	70	1820	490	450
28, ...	190	580	770	650	270	65	1415	430	530
29, ...	190	620	1070	630	258	50	1075	380	650
30, ...	200	....	2395	710	240	*50	910	380	780
31, ...	190	....	....	....	260	....	750	....	920

Notes.—July 1 to September 30, 1912, records not used due to flashboards on dam below gage.
*Assumed.

DAILY DISCHARGE, IN SECOND-FEET, OF WALLENPAUPACK CREEK AT WILSONVILLE, WAYNE COUNTY, PA., FOR 1913.

DAY.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	SEPT	OCT.	NOV.	DEC.
1, ...	1090	450	645	1310	1100	380	....	152	234	507
2, ...	1260	440	485	1160	960	280	....	190	212	455
3, ...	1120	415	350	990	820	270	....	218	206	413
4, ...	1310	350	350	910	680	230	....	222	202	404
5, ...	1860	450	350	810	550	190	....	126	194	368
6, ...	1580	415	350	720	470	170	....	181	177	315
7, ...	1570	350	260	630	440	170	....	184	184	305
8, ...	1560	350	260	550	370	170	....	69	142	557
9, ...	1950	330	260	470	320	170	....	127	252	630
10, ...	1840	320	290	415	290	150	....	139	861	464
11, ...	1410	290	425	415	290	130	....	193	1167	434
12, ...	1340	240	410	690	290	130	....	196	1113	428
13, ...	1260	210	410	930	260	110	....	169	808	426
14, ...	990	210	410	1210	240	90	....	196	631	422
15, ...	750	210	1010	1210	240	82	....	181	510	416
16, ...	510	210	1380	1090	210	75	....	157	455	335
17, ...	700	210	1190	1010	200	75	....	158	480	335
18, ...	910	190	960	1010	200	75	....	188	695	290
19, ...	930	190	780	780	190	70	....	73	660	290
20, ...	950	190	690	660	190	60	....	265	571	270
21, ...	910	190	850	560	180	140	....	413	517	290
22, ...	910	190	850	490	190	112	260	434	470	300
23, ...	860	320	760	450	210	92	307	307	443	270
24, ...	780	415	660	420	490	75	239	235	419	395
25, ...	730	460	630	420	480	70	222	218	398	395
26, ...	750	230	600	420	520	62	198	313	380	430
27, ...	770	230	910	480	340	60	87	611	365	360
28, ...	770	415	3330	550	240	*60	18	416	343	360
29, ...	690	....	2820	820	590	*60	117	320	354	360
30, ...	600	....	2900	1060	540	*60	119	280	493	360
31, ...	520	....	2740	....	490	....	....	260	....	360

Notes.—July 1 to September 21, 1913, gage records lost. *Estimated.

DAILY DISCHARGE, IN SECOND-FEET, OF WALLENPAUPACK CREEK AT WILSONVILLE, WAYNE COUNTY, PA., FOR 1914.

DAY.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.	OCT.	NOV.	DEC.
1,	335	1050	260	1945	905	157	122	161	115	56	15	57
2,	285	1480	*260	1825	781	157	116	141	97	65	52	60
3,	*285	1370	*260	1945	638	146	128	125	73	38	46	65
4,	*335	1105	260	1825	517	141	125	119	95	19	42	60
5,	335	1010	270	*1540	455	255	94	106	78	58	49	75
6,	285	960	260	1260	538	280	110	72	57	63	44	55
7,	310	870	260	1105	672	194	113	60	57	46	10	53
8,	310	*770	260	920	664	210	147	43	87	50	12	121
9,	310	690	235	985	568	265	168	45	65	46	96	260
10,	310	540	235	1333	517	198	143	99	70	31	45	245
11,	310	460	245	1417	449	165	453	106	68	13	50	192
12,	260	390	245	1142	440	149	1070	96	42	50	44	160
13,	235	285	245	1025	785	144	1250	116	17	51	44	148
14,	235	285	235	950	1350	124	885	113	67	46	49	219
15,	235	285	235	825	1325	106	498	87	65	51	15	172
16,	235	285	245	664	1080	109	345	72	58	50	42	172
17,	260	310	335	668	940	118	253	108	56	74	161	172
18,	*245	310	490	935	766	109	214	78	53	50	150	172
19,	235	310	590	905	626	98	202	59	34	91	92	180
20,	235	310	645	753	508	101	170	85	11	74	78	150
21,	260	310	605	779	419	110	144	118	61	46	73	150
22,	285	285	530	1070	349	101	130	113	67	40	49	172
23,	285	285	490	1090	298	105	118	58	44	56	58	180
24,	260	285	460	930	243	108	118	83	41	20	42	130
25,	*300	260	460	765	212	100	141	54	49	25	61	130
26,	335	260	605	698	184	92	278	56	30	61	43	130
27,	310	260	1050	1335	182	87	223	66	13	51	79	111
28,	310	260	3720	1575	196	77	159	64	48	54	85	111
29,	310	....	4840	1227	190	109	263	35	65	51	45	180
30,	460	....	3400	993	168	141	268	46	62	42	65	180
31,	690	....	2415	....	150	....	190	115	....	45	....	180

Note.—*Estimated.

DAILY DISCHARGE, IN SECOND-FEET, OF WALLENPAUPACK CREEK AT WILSONVILLE, WAYNE COUNTY, PA., FOR THE PERIOD ENDING SEPTEMBER 30, 1915.

DAY.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	130	880	1170	219	406	356	98	128	727
2,	111	970	970	219	363	315	128	112	636
3,	111	1170	790	219	345	291	157	122	516
4,	94	1275	620	219	300	265	196	315	410
5,	94	1170	540	244	312	227	194	672	338
6,	100	1070	464	244	383	204	196	759	303
7,	180	970	464	392	348	193	155	736	312
8,	790	880	464	392	315	185	126	705	342
9,	1710	790	464	392	309	174	209	808	324
10,	1275	700	464	360	285	158	206	488	294
11,	970	540	392	620	244	148	142	930	269
12,	880	620	360	970	271	140	114	830	236
13,	880	540	360	1308	330	189	122	656	214
14,	2615	540	360	1186	285	150	176	577	204
15,	1945	620	360	981	231	146	176	463	185
16,	1710	970	360	817	218	159	128	370	165
17,	1275	1480	360	672	215	518	124	333	150
18,	1275	1275	330	596	275	588	117	315	248
19,	1275	880	330	471	271	312	85	268	376
20,	2475	790	330	424	230	287	83	222	653
21,	1945	700	330	376	209	200	86	192	668
22,	1710	620	300	339	506	178	86	361	656
23,	1070	540	300	306	872	172	100	755	608
24,	1070	392	271	336	995	172	99	943	475
25,	970	2470	271	333	925	159	69	898	358
26,	970	2620	271	300	853	142	98	781	285
27,	880	1945	271	582	785	126	134	620	294
28,	700	1480	244	269	693	111	229	483	285
29,	790	....	244	517	544	100	179	406	246
30,	970	....	244	420	443	92	145	545	217
31,	880	....	219	....	389	....	158	698	....

ESTIMATED MONTHLY DISCHARGE OF WALLENPAUPACK CREEK AT WILSONVILLE, WAYNE COUNTY, PA.

(Drainage area 239 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1910.					
January,	3160	55	477	2.00	2.30
February,	790	219	448	1.87	1.95
March,	3560	500	1367	5.72	6.60
April,	3310	224	827	3.46	3.86
May,	1330	172	481	2.01	2.32
June,	464	163	336	1.41	1.57
July,	....	....	....	*0.13	*0.15
August,	....	....	....	*0.56	*0.65
September,	....	....	....	*2.06	*2.30
October,	....	....	....	*0.52	*0.60
November,	....	....	....	*3.00	*3.35
December,	....	....	....	*1.82	*2.10
The year,	....	....	....	2.05	27.75

Note.—*Estimated from precipitation records.

ESTIMATED MONTHLY DISCHARGE OF WALLENPAUPACK CREEK AT WILSONVILLE, WAYNE COUNTY, PA.—Continued.

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1911.					
January,	2135	750	1220	5.10	5.88
February,	790	355	670	2.80	2.92
March,	1580	290	784	3.28	3.78
April,	1710	670	1123	4.70	5.24
May,	860	140	325	1.36	1.57
June,	2050	150	624	2.61	2.91
July,	180	80	120	0.50	0.58
August,	900	10	97	0.41	0.47
September,	860	170	361	1.51	1.68
October,	990	240	528	2.21	2.55
November,	620	270	415	1.74	1.94
December,	740	280	470	1.97	2.27
The year,	2135	10	560	2.35	31.79
1912.					
January,	500	190	273	1.14	1.32
February,	620	120	248	1.04	1.12
March (1 to 30),	2395	240	875	3.66	4.08
April,	1660	630	973	4.07	4.54
May,	1135	240	614	2.57	2.96
June,	390	50	170	0.71	0.79
July,	....	....	....	*0.17	*0.20
August,	....	....	....	*0.69	*0.80
September,	....	....	....	*5.20	*5.80
October,	2280	150	518	2.27	2.62
November,	820	340	487	2.04	2.28
December,	1310	345	690	2.89	3.33
The year,	....	....	....	2.20	29.84
1913.					
January,	1950	510	1070	4.48	5.17
February,	460	190	302	1.27	1.32
March,	3320	260	913	3.82	4.41
April,	1310	415	755	3.16	3.53
May,	1100	180	409	1.71	1.97
June,	380	60	129	0.54	0.60
July,	....	....	....	*0.19	*0.22
August,	....	....	....	*0.35	*0.40
September,	....	....	....	*1.25	*1.40
October,	611	69	232	0.97	1.12
November,	1167	142	465	1.94	2.17
December,	630	270	385	1.61	1.86
The year,	....	....	....	1.77	24.17
1914.					
January,	690	235	303	1.27	1.46
February,	1480	260	546	2.28	2.37
March,	4840	235	795	3.33	3.84
April,	1945	664	1146	4.80	5.36
May,	1350	150	550	2.30	2.65
June,	280	77	142	0.59	0.66
July,	1250	94	278	1.16	1.34
August,	161	35	87	0.36	0.42
September,	115	11	58	0.24	0.27
October,	91	13	49	0.21	0.24
November,	161	10	58	0.24	0.27
December,	260	53	135	0.56	0.65
The year,	4840	10	344	1.44	19.53
1915.					
January,	2615	94	1027	4.30	4.96
February,	2620	392	1032	4.32	4.50
March,	1170	219	417	1.74	2.02
April,	1308	219	477	2.00	2.23
May,	995	209	424	1.77	2.04
June,	588	92	212	0.89	0.99
July,	229	63	139	0.58	0.67
August,	943	112	532	2.23	2.57
September,	727	150	366	1.53	1.71

Note.—*Estimated from precipitation records.

DELAWARE BASIN—STATION NO. 3.

LACKAWAXEN RIVER AT ROWLANDS, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge at Rowlands, Pike County.

RECORDS AVAILABLE—Discharge measurements and gage heights from June 4, 1914, to August 18, 1915. For other records on this river see Lackawaxen River at Hawley.

DRAINAGE AREA—593 square miles.

GAGE—A standard chain gage, whose elevation of zero was arbitrary, was located on the upstream side of the bridge and was read twice daily by A. L. Finch.

CHANNEL—Both banks are high and not subject to overflow, and the bed is composed of coarse gravel and many large stones.

REMARKS—This station was discontinued on August 18, 1915.

DISCHARGE MEASUREMENT OF LACKAWAXEN RIVER AT ROWLANDS, PIKE COUNTY, PA.

(Drainage area 593 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.ft.	
3	Aug. 18	Reckord & Gough, ...	355	3.05	472	0.6 method.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF LACKAWAXEN RIVER AT ROWLANDS, PIKE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.
1,	1.84	‖1.72	2.25	3.47	5.92	4.68	3.02	3.48	3.19	2.54	‖2.57
2,	1.79	1.69	2.14	3.32	5.91	4.12	2.92	‖3.39	3.11	2.72	2.55
3,	1.74	1.84	2.10	‖3.01	5.81	4.00	2.91	3.29	3.08	2.86	2.59
4,	‖1.64	1.80	2.01	2.70	5.53	3.77	‖3.09	3.24	2.98	‖2.83	3.76
5,	1.54	1.87	2.09	2.55	5.52	3.73	3.27	3.32	2.75	2.81	4.88
6,	1.69	1.86	‖2.09	2.59	4.40	3.70	3.59	3.43	‖2.70	2.77	4.83
7,	1.69	1.78	2.10	5.24	‖4.32	‖3.64	3.43	3.27	2.65	2.60	4.24
8,	1.80	‖1.76	2.86	5.20	4.24	3.57	3.41	3.30	2.72	2.55	‖4.27
9,	1.72	1.79	3.45	5.22	4.12	3.54	3.37	‖3.21	2.59	3.67	4.31
10,	1.76	1.85	3.29	‖5.16	3.70	3.46	3.55	3.12	2.50	3.12	4.18
11,	‖1.64	1.91	3.04	5.10	3.74	3.29	‖4.53	2.98	2.49	‖2.95	3.93
12,	1.51	2.00	2.87	5.31	3.67	3.24	5.51	3.06	2.53	2.77	3.87
13,	1.69	2.00	‖2.85	6.55	3.72	3.18	5.16	3.11	‖2.65	2.88	3.67
14,	1.62	1.83	2.83	6.10	‖5.11	‖3.18	4.52	3.27	2.56	2.83	3.46
15,	1.64	‖1.98	2.58	5.54	6.51	3.17	4.47	3.08	2.57	2.93	‖3.36
16,	2.12	2.12	2.60	5.07	6.66	3.18	4.19	‖3.05	2.73	2.62	3.26
17,	2.48	2.82	2.88	‖5.09	5.38	3.25	3.82	3.03	3.15	2.58	3.02
18,	‖2.44	2.49	3.11	5.12	4.51	3.12	‖3.66	3.15	3.59	‖2.56	2.97
19,	2.41	2.47	3.09	5.57	4.36	3.04	3.51	3.00	3.02	2.54	....
20,	2.37	2.39	‖3.17	6.37	4.18	2.97	3.48	2.89	‖2.84	2.62	....
21,	2.23	2.26	3.25	5.54	‖4.13	‖2.96	3.32	2.89	2.66	2.50	....
22,	2.05	‖2.35	3.35	4.60	4.07	2.95	3.31	4.61	2.63	2.54	....
23,	1.98	2.44	*3.62	4.47	4.17	2.99	3.28	‖4.53	2.77	2.60	....
24,	2.06	2.11	3.83	‖4.60	5.65	2.99	3.29	4.45	2.88	2.57	....
25,	‖2.00	2.10	3.91	4.53	6.95	3.07	‖3.20	4.37	2.63	‖2.56	....
26,	1.94	2.06	3.87	4.28	6.58	3.27	3.12	4.05	2.49	2.53	....
27,	1.82	2.21	‖3.74	4.22	5.41	3.34	3.07	4.04	‖2.45	2.97	....
28,	1.68	2.30	3.61	3.98	‖5.05	‖3.20	3.11	3.71	2.40	3.08	....
29,	1.76	‖2.14	3.60	3.29	....	3.05	3.45	3.48	2.29	2.87	....
30,	1.69	1.99	3.57	3.20	....	2.99	3.49	‖3.36	2.27	2.59	....
31,	1.75	....	3.59	‖4.56	....	2.94	....	3.24	....	2.60	....

Notes.—*River frozen December 23, 1914, to January 7, 1915, inclusive. ‖Interpolated.

DELAWARE BASIN—STATION NO. 4.

RATTLESNAKE BROOK AT SPRING BROOK, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, open, wooden highway bridge on Spring Brook road, Pike County, two miles above the mouth.

RECORDS AVAILABLE—Discharge measurements and gage heights from September 22, 1911, to September 30, 1915.

DRAINAGE AREA—11 square miles.

GAGE—A sectional staff gage, whose elevation of zero is arbitrary, is located on the left abutment and is read twice daily by August Tampier.

CHANNEL—Both banks are high and not subject to overflow, and the bed is composed of gravel and mud.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF RATTLESNAKE BROOK AT SPRING BROOK, PIKE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.87	0.87	0.98	1.02	1.90	2.26	1.26	1.44	1.49	1.02	1.20	1.79
2,	0.87	0.87	0.97	1.00	2.11	2.16	1.24	1.42	1.46	1.09	1.18	1.72
3,	0.87	0.87	0.97	1.00	2.30	2.00	1.24	1.40	1.43	1 26	1.28	1.56
4,	0.87	0.87	0.96	0.99	2.33	1.90	1.27	1.36	1.37	1.28	1.87	1.42
5,	0.87	0.87	0.93	0.98	2.23	1.82	1.39	1.38	1.36	1.31	2.45	1.36
6,	0.87	0.87	0.92	0.98	2.27	1.74	1.43	1.47	1.31	1.48	2.29	1.34
7,	0.87	0.87	0.93	2.70	2.40	1.76	1.45	1.42	1.29	1.38	2.16	1.33
8,	0.87	0.87	1.55	2.48	2.30	1.72	1.47	1.40	1.29	1.20	2.09	1.33
9,	0.87	0.87	1.55	*2.18	2.10	1.68	1.49	1.36	1.26	1.40	2.24	1.32
10,	0.87	0.88	1.39	1.96	1.91	1.64	1.41	1.30	1.25	1.32	2.19	1.31
11,	0.87	0.88	1.32	1.80	1.85	1.62	1.78	1.26	1.22	1.22	2.12	1.29
12,	0.87	0.88	1.26	2.11	1.87	1.56	1.93	1.25	1.19	1.11	2.10	1.25
13,	0.87	0.88	1.11	3.71	1.90	1.54	1.73	1.24	1.18	1.10	2.09	1.20
14,	0.87	0.88	1.47	3.01	1.89	1.52	1.65	1.28	1.17	1.06	1.75	1.20
15,	0.89	0.87	1.39	2.61	1.93	1.54	1.58	1.28	1.16	1.05	1.60	1.19
16,	0.91	1.33	1.33	2.36	2.75	1.50	1.54	1.27	1.13	1.05	1.67	1.18
17,	1.01	1.28	1.27	2.40	2.47	1.47	1.51	1.28	1.12	1.05	1.65	1.15
18,	1.00	1.28	1.27	2.48	2.27	1.46	1.49	1.32	1.11	1.00	1.60	1.15
19,	0.94	1.28	*1.25	3.20	2.03	1.44	1.46	1.28	1.11	1.05	1.56	1.52
20,	0.91	1.29	1.19	3.10	2.00	1.42	1.43	1.26	1.11	1.98	1.50	1.56
21,	0.91	1.31	1.17	2.56	1.96	1.42	1.43	1.35	1.10	1.82	1.44	1.54
22,	0.90	1.31	1.17	2.21	1.95	1.41	1.41	2.07	1.10	1.65	1.75	1.51
23,	0.89	1.31	1.17	2.12	2.00	1.40	1.40	2.22	1.06	1.30	1.95	1.47
24,	0.89	1.30	1.13	2.11	2.63	1.40	1.52	2.03	1.06	1.20	1.60	1.43
25,	0.89	1.20	1.07	2.11	3.80	1.39	1.45	1.87	1.05	1.16	1.40	1.36
26,	0.89	1.16	1.07	2.08	3.10	1.38	1.41	1.84	1.03	1.14	1.36	1.30
27,	0.89	1.10	1.04	2.00	2.95	1.38	1.39	1.80	1.01	1.72	1.33	1.30
28,	0.89	1.06	1.02	1.92	2.65	1.38	1.38	1.71	1.01	1.70	1.33	1.30
29,	0.88	1.06	1.03	1.90	....	1.35	1.37	1.64	1.00	1.60	1.58	1.28
30,	0.88	1.03	1.07	1.85	....	1.32	1.42	1.58	0.99	1.45	1.82	1.25
31,	0.88	....	1.07	1.80	....	1.30	....	1.54	....	1.28	1.92	....

Note.—*Creek frozen December 19, 1914, to January 6, 1915, and January 9 to 16, 1915, inclusive.

DELAWARE BASIN—STATION NO. 5.

DELAWARE RIVER AT PORT JERVIS, N. Y.

DESCRIPTION OF STATION.

LOCATION—At two span, steel, through-truss, highway bridge between Port Jervis, New York, and Matamoras, Pa.

RECORDS AVAILABLE—Discharge complete from October 12, 1904, to September 30, 1915. For other records on this river see Delaware River at Riegelsville, N. J.; also Delaware River at Lambertville, N. J., in the 1910-11 Report of the Water Supply Commission.

DRAINAGE AREA—3,250 square miles.

GAGE—A sloping and vertical staff gage, whose elevation of zero is 414.89 feet above mean sea level, is located on the left bank and abutment and is read twice daily by Belle Fuller.

CHANNEL—Both banks are high and do not overflow, and the bed is composed of gravel.

REMARKS—The following data have been furnished by the U. S. Geological Survey who maintain and operate this station.

DISCHARGE MEASUREMENTS OF DELAWARE RIVER AT PORT JERVIS, N. Y.

(Drainage area 3,250 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1914.		Sq. ft.	Feet.	Sec.ft.	
44	Oct. 29	DeGolyer,	496	1.19	447	Wading 800 ft. below gage. 0.2 & 0.8 method.
	1915.					
45	April 10	Hartwell,	2,650	3.62	4,990	0.2 & 0.8 method.
46	June 23	Burchard,	1,720	2.15	1,650	0.2 & 0.8 method.
47	July 13	Hartwell,	3,550	5.17	10,700	0.2 & 0.8 method.
48	July 14	Hartwell,	3,430	4.90	9,450	0.2 & 0.8 method.

DISCHARGE TABLE FOR DELAWARE RIVER AT PORT JERVIS, N. Y., FROM APRIL 1, 1913 TO JANUARY 7, 1915.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.
1.00	330	.90	2860	.80	8930	.70	18600	.60	31970
.10	390	3.00	3080	.90	9350	.80	19220	.70	32720
.20	455	.10	3320	5.00	9780	.90	19850	.80	33480
.30	525	.20	3570	.10	10220	7.00	20500	.90	34240
.40	600	.30	3830	.20	10670	.10	21160	9.00	35000
.50	685	.40	4100	.30	11130	.20	21830	.10	35770
.60	780	.50	4380	.40	11590	.30	22510	.20	36540
.70	880	.60	4670	.50	12060	.40	23200	.30	37310
.80	990	.70	4970	.60	12540	.50	23900	.40	38090
.90	1110	.80	5280	.70	13030	.60	24610	.50	38870
2.00	1240	.90	5600	.80	13540	.70	25320	.60	39650
.10	1380	4.00	5930	.90	14060	.80	26040	.70	40430
.20	1530	.10	6270	6.00	14590	.90	26770	.80	41220
.30	1690	.20	6620	.10	15130	8.00	27500	.90	42010
.40	1860	.30	6980	.20	15680	.10	28240	10.00	42800
.50	2040	.40	7350	.30	16240	.20	28980		
.60	2230	.50	7730	.40	16810	30	29720		
.70	2430	.60	8120	.50	17390	.40	30470		
.80	2640	.70	8520	.60	17990	.50	31220		

DISCHARGE TABLE FOR DELAWARE RIVER AT PORT JERVIS, N. Y., FROM JANUARY 8, 1915.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.
0.60	175	.50	2290	.40	7520	.30	16240	.20	28980
.70	225	.60	2480	.50	7890	.40	16810	.30	29720
.80	280	.70	2680	.60	8270	.50	17390	.40	30470
.90	340	.80	2890	.70	8660	.60	17990	.50	31220
1.00	400	.90	3110	.80	9060	.70	18600	.60	31970
.10	465	3.00	3340	.90	9460	.80	19220	.70	32720
.20	540	.10	3580	5.00	9870	.90	19850	.80	33480
.30	625	.20	3830	.10	10290	7.00	20500	.90	34240
.40	720	.30	4090	.20	10720	.10	21160	9.00	35000
.50	820	.40	4360	.30	11160	.20	21830	.10	35770
.60	930	.50	4640	.40	11610	.30	22510	.20	36540
.70	1050	.60	4920	.50	12070	.40	23200	.30	37310
.80	1170	.70	5210	.60	12550	.50	23900	.40	38090
.90	1300	.80	5510	.70	13040	.60	24610	.50	38870
2.00	1440	.90	5820	.80	13540	.70	25320	.60	39650
.10	1590	4.00	6140	.90	14060	.80	26040	.70	40430
.20	1750	.10	6470	6.00	14590	.90	26770	.80	41220
.30	1920	.20	6810	.10	15130	8.00	27500	.90	42010
.40	2100	.30	7160	.20	15680	.10	28240		

Note.—The above table is not applicable for ice or obstructed channel conditions. It is based on 4 discharge measurements made during 1915 which seems to indicate a shift back to the curve used 1904-08.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF DELAWARE RIVER AT PORT JERVIS, N. Y., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.18	1.16	2.1	....	3.2	5.4	2.6	3.5	2.8	2.2	2.6	3.6
2,	1.15	1.14	1.95	....	6.0	5.4	2.6	3.4	2.7	2.6	2.6	3.3
3,	1.12	1.12	1.9	....	5.4	4.6	2.6	3.4	2.6	3.1	2.7	3.2
4,	1.11	1.18	1.96	....	4.8	4.4	2.5	3.3	2.45	3.0	3.6	3.0
5,	1.08	1.18	2.0	....	4.5	3.8	2.5	3.4	2.4	2.9	6.0	2.9
6,	1.04	1.16	2.0	....	4.3	3.9	2.5	3.3	2.3	3.2	5.1	2.8
7,	1.10	1.14	2.0	....	4.6	3.7	2.9	3.3	2.2	3.1	4.6	2.7
8,	1.25	1.13	2.2	8.6	4.9	3.5	3.1	3.3	2.1	2.6	4.2	2.8
9,	1.18	1.08	2.8	6.4	4.4	3.4	3.3	3.2	2.4	8.8	4.4	2.8
10,	1.07	1.06	2.7	5.3	3.7	3.2	3.4	3.3	2.1	7.4	4.0	2.8
11,	1.08	1.19	2.5	4.5	3.5	3.2	5.3	3.1	2.1	5.5	3.8	2.8
12,	1.02	1.20	2.4	4.2	3.4	3.1	7.9	3.0	1.95	4.6	3.6	2.5
13,	.93	1.18	2.2	6.5	3.3	3.9	6.9	3.6	1.9	5.1	3.4	2.4
14,	.99	1.17	*	6.6	3.7	2.9	5.8	2.9	1.9	4.9	3.2	2.5
15,	1.04	1.22	....	5.6	4.4	2.9	5.2	2.8	1.85	5.0	3.0	2.4
16,	1.12	1.46	....	5.0	9.1	2.9	4.7	2.8	2.3	4.2	3.1	2.5
17,	1.47	1.65	....	4.7	7.3	2.8	4.5	2.8	2.25	3.9	3.0	2.45
18,	1.7	1.95	....	5.0	5.6	2.7	4.2	2.9	2.7	4.0	3.0	2.4
19,	1.7	2.05	....	8.5	4.7	2.6	3.9	2.8	2.4	3.6	2.7	3.8
20,	1.8	1.9	....	9.4	4.5	2.5	3.7	2.7	2.4	3.4	2.6	2.8
21,	1.75	1.8	....	7.1	4.5	2.5	3.6	2.7	2.25	3.9	2.5	3.5
22,	1.75	1.65	....	5.8	4.4	2.5	3.4	3.4	2.15	3.4	2.7	4.6
23,	1.75	1.65	....	5.2	4.3	2.6	3.4	4.1	2.15	3.2	5.5	4.3
24,	1.55	1.65	....	5.1	4.8	2.6	3.4	4.0	2.2	3.2	5.2	3.7
25,	1.45	1.6	....	5.5	9.8	2.7	3.3	3.7	2.2	3.0	4.6	3.3
26,	1.38	1.5	....	4.8	8.8	2.9	3.2	3.5	2.7	3.0	4.8	3.2
27,	1.25	1.6	....	4.4	7.0	3.0	3.1	3.5	2.0	3.2	4.0	3.0
28,	1.24	1.75	....	4.2	5.8	3.0	3.0	3.5	1.9	3.1	3.7	3.2
29,	1.20	1.75	....	4.0	....	2.9	3.0	3.3	1.8	3.0	3.7	3.0
30,	1.17	2.2	....	3.5	....	2.8	3.7	3.1	1.7	3.1	3.8	2.8
31,	1.18	....	....	3.1	....	2.7	....	3.0	....	2.8	4.0	....

Note.—*River frozen December 14, 1914, to January 7, 1915, inclusive.

DAILY DISCHARGE, IN SECOND-FEET, OF DELAWARE RIVER AT PORT JERVIS, N. Y., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	442	429	1380	1290	3830	11600	2480	4640	2890	1750	2480	4920
2,	422	416	1180	1290	14600	11600	2480	4360	2680	2480	2480	4090
3,	403	403	1110	1290	11600	8270	2480	4360	2480	3580	2680	3830
4,	396	442	1180	1290	9060	7520	2290	4090	2200	3310	4920	3340
5,	378	442	1240	1290	7890	5510	2290	4360	2100	3110	14600	3110
6,	354	429	1240	1290	7160	5820	2290	4090	1920	3830	10300	2890
7,	390	416	1240	1290	8270	5210	3110	4090	1750	3580	8270	2680
8,	490	410	1530	32000	9460	4640	3580	4090	1590	2480	6810	2890
9,	442	378	2640	16800	7520	4360	4090	3830	2100	33500	7520	2890
10,	372	366	2430	11200	5210	3830	4360	4090	1590	23200	6140	2890
11,	378	448	2040	7890	4640	3830	11200	3580	1590	12100	5510	2890
12,	342	455	1860	6810	4360	3580	26800	3340	1370	8270	4920	2290
13,	292	442	1530	17400	4090	5820	19800	4920	1300	10300	4360	2100
14,	324	436	*1410	18000	5210	3110	13500	3110	1300	9460	3830	2290
15,	354	469	1410	12600	7520	3110	10700	2890	1240	9870	3340	2100
16,	403	651	1410	9870	35800	3110	8660	2890	1920	6810	3580	2290
17,	660	830	1410	8660	22500	2890	7890	2890	1840	5820	3340	2200
18,	880	1130	1410	9870	12600	2680	6810	3110	2680	6140	3340	2100
19,	880	1310	1410	31200	8660	2480	5820	2890	2100	4920	2680	5510
20,	990	1110	1410	38100	7890	2290	5210	2680	2100	4360	2480	2890
21,	935	990	1410	21200	7890	2290	4920	2680	1840	5820	2290	4640
22,	935	830	1410	13500	7520	2290	4360	4360	1670	4360	2680	8270
23,	935	830	1410	10700	7160	2480	4360	6470	1670	3830	12100	7160
24,	732	830	1410	10300	9060	2480	4360	6140	1750	3830	10700	5210
25,	644	780	1410	12100	41200	2680	4090	5210	1750	3340	8270	4090
26,	585	685	1410	9060	33500	3110	3830	4640	2680	3340	9060	3830
27,	490	780	1410	7520	20500	3340	3580	4640	1440	3830	6140	3340
28,	483	985	1410	6810	13500	3340	3340	4640	1300	3580	5210	3830
29,	455	935	1410	6140	....	3110	3340	4090	1170	3340	5210	3340
30,	436	1530	1410	4640	....	2890	5210	3580	1050	3580	5510	2890
31,	442	....	1410	3580	....	2680	....	3340	....	2890	6140	....

Note—*River frozen December 14, 1914, to January 7, 1915, inclusive, and discharge estimated.

ESTIMATED MONTHLY DISCHARGE OF DELAWARE RIVER AT PORT JERVIS, N. Y.

(Drainage area 3,250 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	990	292	538	0.17	0.19
November,	1530	366	686	0.21	0.24
December,	2640	....	1480	0.46	0.52
1915.					
January,	38100	....	10800	3.32	3.83
February,	41200	3580	12100	3.72	3.87
March,	11600	2290	4260	1.31	1.51
April,	26800	2290	6240	1.92	2.14
May,	6470	2680	4000	1.23	1.42
June,	2890	1050	1840	0.57	0.63
July,	33500	1750	6470	1.99	2.29
August,	14600	2290	5710	1.76	2.03
September,	8270	2100	3560	1.10	1.23
The year,	41200	292	4760	1.46	19.90

Note.—River frozen December 14, 1914, to January 7, 1915, inclusive, and discharge estimated.

DELAWARE BASIN—STATION NO. 6.

BUSHKILL CREEK AT SHOEMAKERS, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge, 2 miles upstream from Bushkill, Pike County, and 2½ miles above mouth.

RECORDS AVAILABLE—Discharge complete from September 19, 1908, to September 30, 1915.

DRAINAGE AREA—115 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the upstream side of the bridge and is read once daily by George Beaver.

CHANNEL—Both banks are high and not subject to overflow, and the bed is composed of gravel and large rocks.

REMARKS—Saw Creek enters from the left a few hundred feet above the station.

DISCHARGE MEASUREMENT OF BUSHKILL CREEK AT SHOEMAKERS, MONROE COUNTY, PA.

(Drainage area 115 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.ft.	
14	Aug. 19	Reckord & Gough, ...	90	1.70	124	0.6 method.

DISCHARGE TABLE FOR BUSHKILL CREEK AT SHOEMAKERS, MONROE COUNTY, PA., FROM SEPTEMBER 19, 1908.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
0.90	6	.80	160	.70	596	.60	1455	.50	2445
1.00	12	.90	195	.80	672	.70	1565	.60	2555
.10	20	2.00	233	.90	750	.80	1675	.70	2665
.20	31	.10	273	3.00	838	.90	1785	.80	2775
.30	44	.20	317	.10	928	4.00	1895	.90	2885
.40	60	.30	364	.20	1025	.10	2005	5.00	2995
.50	79	.40	415	.30	1130	.20	2115		
.60	102	.50	469	.40	1237	.30	2225		
.70	128	.60	529	.50	1346	.40	2335		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF BUSHKILL CREEK AT SHOEMAKERS, MONROE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.02	1.05	1.18	....	2.34	2.93	1.70	2.08	1.99	1.43	1.39	1.75
2,	1.02	1.05	1.20	....	2.66	2.73	1.68	1.95	1.94	1.40	2.30	1.70
3,	1.02	1.05	1.23	....	2.63	2.58	1.68	1.91	1.94	1.80	2.25	1.62
4,	1.02	1.03	1.23	....	2.53	2.54	1.68	1.88	1.91	1.86	2.45	1.58
5,	1.02	1.03	1.22	....	2.51	2.40	1.78	1.98	1.87	1.80	2.75	1.53
6,	1.02	1.00	1.25	....	2.63	2.33	1.81	1.96	1.84	1.73	2.60	1.50
7,	1.02	1.00	1.30	3.09	2.78	2.28	1.89	1.93	1.82	1.68	2.40	1.60
8,	1.02	1.00	1.92	3.01	2.68	2.20	1.88	1.88	1.79	1.65	2.32	1.60
9,	1.02	1.00	2.10	2.71	2.58	2.18	1.86	1.88	1.71	1.83	2.30	1.58
10,	1.01	1.13	2.95	2.59	2.38	2.18	1.86	1.83	1.69	1.75	2.25	1.55
11,	1.01	1.10	1.78	2.52	2.34	2.10	2.13	1.78	1.64	1.60	2.20	1.50
12,	1.01	1.08	1.70	2.39	2.30	2.03	2.23	1.74	1.74	1.60	2.10	1.46
13,	1.00	1.08	1.68	2.89	2.28	1.98	2.18	1.96	1.71	1.58	2.23	1.45
14,	1.00	1.05	1.85	3.09	2.28	1.98	2.10	1.81	1.66	1.65	2.12	1.40
15,	1.00	1.35	1.96	3.09	2.56	1.98	2.03	1.78	1.59	1.65	2.05	1.40
16,	1.15	1.65	*	2.89	2.74	1.98	1.98	1.75	1.72	1.59	2.00	1.38
17,	1.40	1.48	....	2.69	2.78	1.96	1.90	1.80	1.67	1.55	1.92	1.36
18,	1.30	1.35	....	2.94	2.53	1.91	1.88	1.87	1.64	1.48	1.83	1.32
19,	1.22	1.33	....	3.49	2.48	1.88	1.88	1.81	1.62	1.45	1.74	1.53
20,	1.15	1.80	....	3.19	2.44	1.87	1.88	1.73	1.58	1.52	1.72	1.55
21,	1.12	1.30	....	3.11	2.40	1.84	1.86	1.80	1.56	1.48	1.69	1.60
22,	1.10	1.28	....	2.79	2.40	1.83	1.81	2.38	1.54	1.37	1.80	1.70
23,	1.10	1.25	....	2.69	2.40	1.83	1.88	2.44	1.59	1.35	1.96	1.67
24,	1.10	1.30	....	2.69	2.98	1.83	1.88	2.28	1.52	1.35	1.80	1.63
25,	1.08	1.25	....	2.57	4.46	1.83	1.86	2.40	1.49	1.35	1.75	1.59
26,	1.08	1.23	....	2.54	3.98	1.83	1.84	2.36	1.47	1.33	1.68	1.55
27,	1.08	1.20	....	2.44	3.28	1.80	1.83	2.33	1.41	1.42	1.55	1.53
28,	1.05	1.18	....	2.32	3.08	1.78	1.78	2.23	1.39	1.40	1.52	1.48
29,	1.05	1.18	....	2.21	....	1.77	1.98	2.13	1.35	1.48	1.83	1.46
30,	1.05	1.18	....	2.14	....	1.73	2.13	2.10	1.31	1.45	1.88	1.40
31,	1.05	....	....	2.28	....	1.70	....	2.03	....	1.42	1.80	....

Note.—*Creek frozen December 16, 1914, to January 6, 1915, inclusive.

DAILY DISCHARGE, IN SECOND-FEET, OF BUSHKILL CREEK AT SHOEMAKERS, MONROE COUNTY. PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	14	16	29	69	384	776	128	265	229	66	58	144
2,	14	16	31	69	569	619	123	214	210	60	364	128
3,	14	16	35	69	549	617	123	199	210	160	340	107
4,	14	14	35	69	487	493	123	188	199	181	442	97
5,	14	14	34	69	475	415	154	225	184	160	634	86
6,	14	12	38	69	549	379	164	218	174	138	529	79
7,	14	12	44	919	657	355	192	206	167	123	415	102
8,	14	12	203	847	583	317	188	188	157	115	374	102
9,	14	12	273	604	517	308	181	188	131	170	364	97
10,	13	23	794	523	405	308	181	170	125	144	340	90
11,	13	20	154	481	384	273	286	154	112	102	317	79
12,	13	18	128	410	364	245	331	141	141	102	273	71
13,	12	18	123	742	355	225	308	218	131	97	331	70
14,	12	16	178	919	355	225	273	164	118	115	282	60
15,	12	52	218	919	506	225	245	154	100	115	253	60
16,	26	115	*85	742	626	225	225	144	134	100	233	57
17,	60	75	85	589	619	218	195	160	120	90	203	54
18,	44	52	85	785	487	199	188	184	112	75	170	47
19,	34	49	85	1340	458	188	188	164	107	70	141	86
20,	26	44	85	1020	437	184	183	138	97	84	134	90
21,	22	44	85	938	415	174	181	160	93	75	125	102
22,	20	41	85	664	415	170	164	405	88	55	160	128
23,	20	38	85	589	415	170	188	437	100	52	218	120
24,	20	44	85	589	776	170	188	355	84	52	160	110
25,	18	39	85	611	2400	170	181	415	77	52	144	100
26,	18	35	85	493	1870	170	174	395	73	49	123	90
27,	18	31	85	437	1110	160	170	379	62	64	90	86
28,	16	29	85	374	910	154	154	331	58	60	84	75
29,	16	29	85	322	....	150	225	286	52	75	170	71
30,	16	29	85	291	....	138	286	273	46	70	188	60
31,	16	....	85	355	....	128	....	245	....	64	160	....

Note.—*Creek frozen December 16, 1914, to January 6, 1915, inclusive, and discharge estimated from Lehigh River at Tannery.

ESTIMATED MONTHLY DISCHARGE OF BUSHKILL CREEK AT SHOEMAKERS, MONROE COUNTY, PA.

(Drainage area 115 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	60	12	19	0.17	0.20
November,	115	12	32	0.28	0.31
December,	794	....	119	1.04	1.20
1915.					
January,	1340	....	542	4.71	5.43
February,	2400	355	646	5.61	5.84
March,	776	128	272	2.37	2.73
April,	331	123	196	1.70	1.90
May,	437	138	238	2.07	2.39
June,	229	46	123	1.07	1.19
July,	181	49	95	0.83	0.96
August,	634	58	252	2.19	2.52
September,	144	47	88	0.77	0.86
The year,	2400	12	218	1.90	25.53

Note.—Creek frozen December 16, 1914, to January 6, 1915, inclusive, and discharge estimated from Lehigh River at Tannery.

DELAWARE BASIN—STATION No. 7.

ANALOMINK CREEK AT HENRYVILLE, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, highway bridge one mile above railroad station at Henryville, Monroe County.

RECORDS AVAILABLE—Discharge complete from September 16, 1908, to December 31, 1911, and February 17, 1913, to August 23, 1915.

DRAINAGE AREA—35 square miles.

GAGE—A 10 foot staff gage, whose elevation of zero was arbitrary, was spiked to a tree on the right bank 500 feet above the bridge and was read twice daily by George Henry.

CHANNEL—Both banks are high and do not overflow, and the bed is composed of gravel.

REMARKS—This station was discontinued August 31, 1915.

DISCHARGE TABLE FOR ANALOMINK CREEK AT HENRYVILLE, MONROE COUNTY, PA., FROM SEPTEMBER 16, 1908.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
0.30	8	1.00	119	.70	356	.40	650	.10	976
.40	12	.10	147	.80	395	.50	696	.20	1023
.50	20	.20	178	.90	436	.60	742	.30	1070
.60	32	.30	209	2.00	477	.70	789		
.70	48	.40	243	.10	519	.80	835		
.80	68	.50	280	.20	561	.90	882		
.90	92	.60	318	.30	605	3.00	929		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF ANALOMINK CREEK AT HENRYVILLE, MONROE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.
1,	0.40	0.35	0.40	0.70	1.70	1.70	0.90	0.80	0.88	0.50	0.40
2,	0.40	0.35	0.40	0.60	1.50	1.70	0.90	0.80	0.82	0.50	0.40
3,	0.40	0.35	0.40	0.50	1.10	1.50	0.90	0.80	0.80	0.50	0.98
4,	0.40	0.35	0.40	0.50	1.00	1.50	0.90	0.80	0.80	0.50	1.40
5,	0.40	0.35	0.40	0.50	1.00	1.50	0.88	0.80	0.80	0.50	1.30
6,	0.40	0.35	0.40	0.50	1.00	1.50	0.85	0.75	0.80	0.50	1.00
7,	0.40	0.35	0.55	2.00	1.00	1.30	0.80	0.80	0.80	0.50	0.95
8,	0.40	0.35	1.00	1.70	1.00	1.25	0.80	0.80	0.80	0.50	0.85
9,	0.40	0.35	1.00	1.70	1.00	1.05	0.80	0.80	0.80	0.50	0.90
10,	0.40	0.35	0.90	1.70	1.05	1.00	0.80	0.75	0.70	0.50	0.80
11,	0.40	0.35	0.80	1.50	1.00	1.00	0.80	0.75	0.70	0.50	0.75
12,	0.40	0.35	0.70	1.50	1.00	1.00	0.80	0.80	0.70	0.50	0.70
13,	0.40	0.35	0.65	1.50	1.00	1.00	0.80	0.80	0.70	0.50	0.70
14,	0.40	0.35	0.60	1.50	1.00	1.00	0.80	0.80	0.70	0.50	0.70
15,	0.40	0.38	0.60	1.50	1.00	0.95	0.80	0.80	0.70	0.50	0.70
16,	0.40	0.38	0.60	1.60	1.00	0.95	0.80	0.80	0.70	0.50	0.70
17,	0.50	0.52	0.60	1.75	1.40	1.00	0.80	0.90	0.70	0.50	0.70
18,	0.45	0.50	0.60	2.02	1.30	1.00	0.80	0.90	0.65	0.50	0.80
19,	0.45	0.48	0.60	2.05	1.00	0.95	0.80	0.92	0.65	0.50	0.80
20,	0.45	0.42	0.50	2.00	1.00	0.85	0.80	0.90	0.65	0.40	0.80
21,	0.42	0.45	0.50	1.90	1.00	0.90	0.80	1.02	0.65	0.40	0.80
22,	0.40	0.40	0.50	1.90	1.00	0.90	0.80	1.05	0.65	0.40	0.80
23,	0.40	0.40	0.50	1.90	1.00	0.90	0.80	1.00	0.55	0.40	0.80
24,	0.40	0.40	0.70	1.80	2.72	0.90	0.80	1.00	0.50	0.40	....
25,	0.40	0.40	0.70	1.70	2.45	0.90	0.80	1.00	0.50	0.40	....
26,	0.40	0.40	0.70	1.50	1.80	0.90	0.80	1.00	0.50	0.40	....
27,	0.40	0.40	0.70	1.50	1.75	0.90	0.80	1.00	0.50	0.40	....
28,	0.40	0.40	0.80	1.50	1.70	0.90	0.80	1.00	0.50	0.40	....
29,	0.38	0.40	0.80	1.50	....	0.90	0.80	1.00	0.50	0.40	....
30,	0.35	0.40	0.80	1.50	....	0.90	0.80	0.90	0.50	0.42	....
31,	0.35	....	0.70	1.60	....	0.90	....	0.90	....	0.40	....

DAILY DISCHARGE, IN SECOND-FEET, OF ANALOMINK CREEK AT HENRYVILLE, MONROE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.
1,	12	10	12	48	356	356	92	68	87	20	12
2,	12	10	12	32	280	356	92	68	73	20	12
3,	12	10	12	20	147	280	92	68	68	20	114
4,	12	10	12	20	119	280	92	68	68	20	243
5,	12	10	12	20	119	280	87	68	68	20	209
6,	12	10	12	20	119	280	80	58	68	20	119
7,	12	10	26	477	119	209	68	68	68	20	106
8,	12	10	119	356	119	194	68	68	68	20	80
9,	12	10	119	356	119	133	68	68	68	20	92
10,	12	10	92	356	133	119	68	58	48	20	68
11,	12	10	68	280	119	119	68	58	48	20	58
12,	12	10	48	280	119	119	68	68	48	20	48
13,	12	10	40	280	119	119	68	68	48	20	48
14,	12	10	32	280	119	119	68	68	48	20	48
15,	12	11	32	280	119	106	68	68	48	20	48
16,	12	87	32	318	119	106	68	68	48	20	48
17,	20	22	32	376	243	119	68	92	48	20	48
18,	16	20	32	485	209	119	68	92	40	20	68
19,	16	18	32	498	119	106	68	97	40	20	68
20,	16	14	20	477	119	80	68	92	40	12	68
21,	14	16	20	436	119	92	68	125	40	12	68
22,	12	12	20	436	119	92	68	133	40	12	68
23,	12	12	20	436	119	92	68	119	26	12	68
24,	12	12	48	395	798	92	68	119	20	12	....
25,	12	12	48	356	673	92	68	119	20	12	....
26,	12	12	48	280	395	92	68	119	20	12	....
27,	12	12	48	280	376	92	68	119	20	12	....
28,	12	12	68	280	356	92	68	119	20	12	....
29,	11	12	68	280	....	92	68	119	20	12	....
30,	10	12	68	280	....	92	68	92	20	14	....
31,	10	....	48	318	....	92	....	92	....	12	....

ESTIMATED MONTHLY DISCHARGE OF ANALOMINK CREEK AT HENRYVILLE, MONROE COUNTY, PA.

(Drainage area 35 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	20	10	13	0.37	0.43
November,	87	10	15	0.43	0.48
December,	119	12	42	1.20	1.38
1915.					
January,	498	20	291	8.31	9.58
February,	798	119	214	6.11	6.36
March,	356	80	149	4.26	4.91
April,	92	68	72	2.06	2.30
May,	133	58	87	2.48	2.86
June,	87	20	46	1.31	1.46
July,	20	12	17	0.49	0.56

DELAWARE BASIN—STATION NO. 8.

POCONO CREEK NEAR STROUDSBURG, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, wooden covered, highway bridge known as "Brand's Bridge" about 2 miles above Stroudsburg, Monroe County.

RECORDS AVAILABLE—Discharge complete from August 10, 1911, to September 30, 1915.

DRAINAGE AREA—38 square miles.

GAGE—A sectional chain gage, whose elevation of zero is arbitrary, is located on the upstream side of the bridge, and is read twice daily by George K. Brands.

CHANNEL—Both banks are high and do not overflow, and the bed is composed of small stones and gravel.

REMARKS—During extreme stages water passes around the bridge but this happens but once or twice a year.

DISCHARGE MEASUREMENTS OF POCONO CREEK NEAR STROUDSBURG, MONROE COUNTY, PA.

(Drainage area 38 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.ft.	
11	May 10	Wilson & Gough, ...	23	2.36	40	Wading msmt. 50 ft. below bridge.
12	Aug. 20	Reckord & Gough, ...	30	2.43	51	Wading msmt. 50 ft. below bridge.

DISCHARGE TABLE FOR POCONO CREEK NEAR STROUDSBURG, MONROE COUNTY, PA., FROM AUGUST 10, 1911.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
1.80	9	.60	57	.40	177	.20	420	5.00	845
.90	12	.70	68	.50	199	.30	462	.10	920
2.00	15	.80	80	.60	223	.40	507	.20	1005
.10	19	.90	92	.70	249	.50	556		
.20	24	3.00	106	.80	278	.60	607		
.30	30	.10	121	.90	310	.70	660		
.40	38	.20	137	4.00	344	.80	716		
.50	47	.30	156	.10	380	.90	776		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF POCONO CREEK NEAR STROUDSBURG, MONROE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	2.01	1.86	2.13	2.50	4.14	3.94	2.51	2.54	2.58	2.21	2.14	2.52
2,	1.94	2.02	2.14	2.48	4.15	3.92	2.48	2.56	2.54	2.36	2.28	2.46
3,	2.02	2.02	2.18	2.48	4.03	3.93	2.50	2.56	2.51	2.78	2.56	2.39
4,	1.91	1.96	2.12	2.43	3.64	3.50	2.53	2.56	2.48	2.76	4.12	2.39
5,	1.98	2.03	1.96	2.48	3.73	3.12	2.51	2.64	2.53	2.70	3.45	2.40
6,	2.00	1.96	1.82	2.44	4.16	3.02	2.61	2.50	2.53	2.51	3.12	2.41
7,	1.96	2.03	2.25	†5.84	3.99	3.02	2.60	2.38	2.48	2.41	3.08	2.78
8,	1.91	2.02	3.20	4.10	3.71	2.92	2.60	2.52	2.42	2.44	3.49	2.66
9,	1.96	1.97	3.20	2.72	3.41	2.92	2.56	2.48	2.44	2.62	3.18	2.56
10,	1.92	1.99	3.07	2.69	3.41	2.90	2.58	2.42	2.41	2.57	2.98	2.48
11,	1.92	2.04	2.91	2.45	3.70	2.81	2.74	2.40	2.40	2.50	2.74	2.41
12,	2.00	1.88	2.80	3.72	4.12	2.79	2.76	2.43	2.64	2.46	2.95	2.44
13,	2.07	2.00	2.52	5.66	4.15	2.71	2.69	2.46	2.55	2.43	2.88	2.43
14,	2.09	2.01	2.59	4.20	4.02	2.74	2.66	2.48	2.56	2.47	2.62	2.36
15,	1.95	2.12	2.52	3.88	4.34	2.69	2.62	2.44	2.50	2.46	2.83	2.30
16,	2.26	2.82	2.50	3.60	4.68	2.70	2.62	2.45	2.46	2.40	2.78	2.26
17,	2.38	2.52	2.42	3.70	4.12	2.70	2.54	2.53	2.58	2.34	2.76	2.18
18,	2.20	2.30	2.48	4.02	4.04	2.72	2.47	2.45	2.46	2.34	2.66	2.19
19,	2.09	2.28	2.48	4.64	3.82	2.72	2.48	2.41	2.46	2.32	2.45	2.18
20,	2.10	2.18	2.53	4.08	3.51	2.67	2.50	2.62	2.82	2.38	2.42	2.54
21,	2.08	2.20	2.52	3.61	3.20	2.66	2.52	3.78	2.30	2.26	2.44	2.59
22,	2.01	2.12	2.49	3.56	3.16	2.64	2.50	3.50	2.34	2.13	3.80	2.38
23,	2.02	2.14	2.53	3.58	3.20	2.60	2.52	3.48	2.32	2.17	3.92	2.35
24,	2.00	2.18	2.56	3.52	4.52	2.58	2.48	3.66	2.30	2.20	3.69	2.19
25,	1.88	2.10	2.54	3.36	5.85	2.54	2.46	3.70	2.27	2.14	2.84	2.19
26,	2.02	2.14	2.49	3.33	4.94	2.53	2.47	3.22	2.28	2.36	2.52	2.24
27,	2.02	2.16	2.32	3.40	4.55	2.50	2.50	2.66	2.23	2.36	2.46	2.26
28,	1.94	2.15	2.38	3.40	3.96	2.48	2.57	2.56	2.24	2.24	2.44	2.22
29,	1.94	2.05	2.36	3.02	....	2.41	2.54	2.58	2.20	2.25	2.68	2.18
30,	2.00	2.19	2.40	2.98	....	2.49	2.60	2.62	2.16	2.26	2.73	2.16
31,	2.03	....	2.46	3.00	....	2.52	....	2.66	....	2.20	2.60	....

Note.—†Maximum 6.52 ft. at 8 A. M.

DAILY DISCHARGE, IN SECOND-FEET, OF POCONO CREEK NEAR STROUDSBURG, MONROE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	15	11	20	47	396	324	48	51	55	25	21	49
2,	13	16	21	45	400	317	45	53	51	35	29	43
3,	16	16	23	45	355	320	47	53	48	78	53	37
4,	12	14	20	41	233	199	50	53	45	75	388	37
5,	14	16	14	41	258	124	48	61	49	68	188	38
6,	15	14	10	42	404	109	58	47	49	48	124	39
7,	14	16	27	†1680	341	109	57	36	45	39	118	78
8,	12	16	137	380	252	95	57	49	40	42	197	64
9,	14	14	137	70	179	95	53	45	42	59	134	53
10,	13	15	116	67	179	92	55	40	39	54	103	45
11,	13	17	93	42	249	81	73	38	38	47	73	39
12,	15	11	80	255	388	79	75	41	61	43	99	42
13,	18	15	49	1480	400	69	67	43	52	41	90	41
14,	19	15	66	420	351	73	64	45	53	44	59	35
15,	14	20	49	304	480	67	59	42	47	43	84	30
16,	28	82	47	223	649	68	69	42	43	38	78	28
17,	36	49	40	249	388	68	51	50	55	33	75	23
18,	24	30	45	351	358	70	44	42	43	33	64	24
19,	19	29	45	628	284	70	45	39	43	32	42	23
20,	19	23	50	373	201	65	47	59	32	36	40	51
21,	18	24	49	226	137	64	49	272	30	28	42	56
22,	15	20	46	213	131	61	47	199	33	20	278	36
23,	16	21	50	218	137	57	49	195	32	22	317	34
24,	15	23	53	204	566	55	45	239	30	24	246	24
25,	11	19	51	169	1700	51	43	249	28	21	85	24
26,	16	21	46	162	804	50	44	141	29	35	49	26
27,	16	22	32	177	582	47	47	64	26	35	43	28
28,	13	22	36	177	330	45	54	53	26	26	42	25
29,	13	17	35	109	....	39	51	55	24	27	66	23
30,	15	24	38	103	....	46	57	59	22	28	70	22
31,	16	....	43	106	....	49	....	64	....	24	57	....

Notes.—†Maximum = 2410 sec. ft. Discharges above 1005 sec. ft. are estimated.

ESTIMATED MONTHLY DISCHARGE OF POCONO CREEK NEAR STROUDSBURG, MONROE COUNTY, PA.

(Drainage area 38 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	36	11	16	0.42	0.48
November,	82	11	22	0.58	0.65
December,	137	10	50	1.32	1.52
1915.					
January,	††2410	41	279	7.34	8.46
February,	††1700	131	398	10.50	10.93
March,	324	39	99	2.61	3.01
April,	75	43	53	1.39	1.55
May,	272	36	81	2.13	2.46
June,	61	22	40	1.05	1.17
July,	78	20	39	1.03	1.19
August,	388	21	108	2.84	3.27
September,	78	22	37	0.97	1.08
The year,	††2410	10	102	2.68	35.77

Note.—††Estimated.

DELAWARE BASIN—STATION NO. 9.

McMICHAELS CREEK NEAR STROUDSBURG, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, railroad bridge of Wilkes-Barre and Eastern Railroad near car shops above Stroudsburg, Monroe County.

RECORDS AVAILABLE—Discharge complete from August 10, 1911, to September 30, 1915. For other records on this creek see McMichaels Creek at Stroudsburg in the 1910-11 Report of the Water Supply Commission.

DRAINAGE AREA—60 square miles.

GAGE—A sectional chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge and is read twice daily by A. W. Marvin.

CHANNEL—Both banks are high and do not overflow, and the bed is composed of stones and mud. The thread of the current passes under the bridge at a slight angle.

DISCHARGE MEASUREMENTS OF McMICHAELS CREEK NEAR STROUDSBURG, MONROE COUNTY, PA.

(Drainage area 60 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.ft.	
11	Jan. 6	Wilson & Gough, ...	118	3.09	41	Msmt. under ice cover.
12	Feb. 2	Brady, ...	210	4.50	255	Surface msmt.
13	Feb. 2	Brady, ...	205	4.43	259	Surface msmt.
14	May 10	Wilson & Gough, ...	132	3.14	49	0.6 method.
15	Aug. 20	Reckord & Gough, ...	145	3.41	98	0.6 method.

DISCHARGE TABLE FOR McMICHAELS CREEK NEAR STROUDSBURG, MONROE COUNTY, PA., FROM AUGUST 10, 1911.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
2.80	18	.40	100	4.00	258	.60	492	.20	850
.90	28	.50	120	.10	292	.70	540	.30	928
3.00	40	.60	142	.20	326	.80	592	.40	1010
.10	52	.70	166	.30	364	.90	648	.50	1100
.20	66	.80	194	.40	404	5.00	710		
.30	82	.90	224	.50	446	.10	778		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF McMICHAELS CREEK NEAR STROUDSBURG, MONROE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	2.90	2.87	2.93	3.11	‡5.76	4.30	3.22	3.26	3.19	3.19	3.80	3.52
2,	2.89	2.87	2.91	3.09	4.74	4.19	3.20	3.14	3.16	3.27	3.68	3.48
3,	2.89	2.87	2.91	3.06	4.16	4.10	3.18	3.16	3.16	3.35	3.62	3.41
4,	2.89	2.87	2.90	3.05	3.98	3.94	3.22	3.14	3.13	3.26	6.14	3.38
5,	2.88	2.87	2.89	3.04	3.89	3.84	3.20	3.12	3.12	3.23	4.83	3.36
6,	2.88	2.89	2.87	3.07	5.14	3.84	3.17	3.11	3.10	3.18	4.14	3.34
7,	2.88	2.88	3.11	†7.65	4.58	3.99	3.16	3.12	3.09	3.15	3.96	3.32
8,	2.90	2.89	4.26	4.47	4.02	3.88	3.14	3.12	3.08	3.13	3.78	3.30
9,	2.89	2.88	3.85	4.11	3.88	3.70	3.13	3.10	3.06	3.10	3.68	3.29
10,	2.88	2.87	3.63	3.81	3.75	3.60	3.12	3.12	3.06	3.08	3.62	3.27
11,	2.88	2.87	3.45	3.64	3.70	3.56	3.35	3.10	3.05	3.31	3.57	3.24
12,	2.87	2.87	3.41	5.22	3.72	3.54	3.41	3.08	3.34	3.48	3.68	3.23
13,	2.87	2.86	3.77	6.70	3.85	3.52	3.38	3.08	3.26	3.49	4.01	3.20
14,	2.87	2.85	3.70	5.19	3.86	3.52	3.36	3.06	3.24	3.50	3.80	3.19
15,	2.87	2.96	3.59	4.90	4.76	3.52	3.32	3.05	3.23	3.39	3.73	3.17
16,	3.00	3.66	3.55	4.72	4.41	3.50	3.32	3.06	3.22	3.30	3.72	3.15
17,	3.23	3.27	3.52	4.67	4.21	3.50	3.30	3.18	3.30	3.33	3.67	3.14
18,	3.08	3.03	3.49	5.11	4.06	3.48	3.28	3.14	3.30	3.31	3.62	3.12
19,	2.98	3.01	3.47	5.32	3.90	3.47	3.28	3.12	3.27	3.28	3.54	3.56
20,	2.95	3.00	3.47	4.96	3.75	3.44	3.26	3.09	3.26	3.23	3.45	3.47
21,	2.91	2.99	3.50	4.84	3.74	3.43	3.24	3.08	3.28	3.19	3.43	3.44
22,	2.91	2.98	3.50	4.83	3.71	3.42	3.23	3.65	3.32	3.17	3.54	3.40
23,	2.90	2.97	3.49	4.86	3.70	3.40	3.20	3.46	3.27	3.13	3.78	3.34
24,	2.90	2.97	3.47	4.79	5.10	3.38	3.19	3.38	3.26	3.10	3.60	3.27
25,	2.89	2.95	3.47	4.76	5.84	3.36	3.17	3.34	3.23	3.08	3.49	3.24
26,	2.89	2.95	3.43	4.70	4.91	3.33	3.15	3.31	3.26	3.11	3.45	3.21
27,	2.89	2.94	3.35	4.71	4.54	3.30	3.13	3.28	3.40	3.11	3.42	3.19
28,	2.89	2.93	3.26	4.72	4.39	3.28	3.13	3.26	3.32	3.09	3.40	3.17
29,	2.88	2.93	3.21	4.70	....	3.26	3.20	3.26	3.27	3.07	3.76	3.16
30,	2.98	2.95	3.17	4.66	....	3.24	3.08	3.24	3.23	3.07	3.72	3.14
31,	2.88	....	3.15	4.58	....	3.23	....	3.21	....	3.15	3.58	....

Notes.—†Maximum 8.76 ft. at 8.40 A. M. ‡Maximum 6.46 ft. at 4.10 P. M.

DAILY DISCHARGE, IN SECOND-FEET, OF McMICHAELS CREEK NEAR STROUDSBURG, MONROE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	28	25	32	53	‡1340	364	69	76	65	65	194	124
2,	27	25	29	51	561	323	66	58	60	77	161	116
3,	27	25	29	47	312	292	63	60	60	91	147	102
4,	27	25	28	46	251	238	69	58	56	76	1700	96
5,	26	25	27	45	218	206	66	55	55	71	376	93
6,	26	27	25	48	807	206	62	53	52	63	306	89
7,	26	26	53	†3120	483	255	60	55	51	59	244	86
8,	28	27	349	433	265	218	58	55	50	56	188	82
9,	27	26	209	295	218	166	56	52	47	52	161	80
10,	26	25	149	197	180	142	55	55	47	50	147	77
11,	26	25	110	152	166	133	91	52	46	84	135	72
12,	25	25	102	866	172	129	102	50	89	116	161	71
13,	25	24	186	2230	209	124	96	50	76	118	261	66
14,	25	23	166	843	212	124	93	47	72	120	194	65
15,	25	35	140	648	571	124	86	46	71	98	174	62
16,	40	156	131	550	408	120	86	47	69	82	172	59
17,	71	77	124	526	330	120	82	63	82	87	159	58
18,	50	45	118	785	278	116	79	58	82	84	147	55
19,	38	41	114	944	224	114	79	55	77	79	129	133
20,	34	40	114	685	180	108	76	51	76	71	110	114
21,	29	39	120	614	177	106	72	50	79	65	106	108
22,	29	38	120	609	169	104	71	154	86	62	129	100
23,	28	36	118	626	166	100	66	112	77	56	188	89
24,	28	36	114	587	778	96	65	96	76	52	142	77
25,	27	34	114	571	1420	93	62	89	71	50	118	72
26,	27	34	106	540	654	87	59	84	76	53	110	68
27,	27	33	91	545	464	82	56	79	100	53	104	65
28,	27	32	76	550	400	79	56	76	86	51	100	62
29,	26	32	68	540	....	76	66	76	77	48	183	60
30,	26	34	62	521	....	72	50	72	71	48	172	58
31,	26	....	59	483	....	71	....	68	....	59	138	....

Notes.—†Maximum=4160 sec.-ft. ‡Maximum=2000 sec.-ft. Discharges above 1100 sec.-ft. are estimated.

ESTIMATED MONTHLY DISCHARGE OF McMICHAELS CREEK NEAR STROUDSBURG, MONROE COUNTY. PA.

(Drainage area 60 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	71	25	30	0.50	0.58
November,	156	23	36	0.60	0.67
December,	349	25	106	1.77	2.04
1915.					
January,	††4160	45	605	10.08	11.62
February,	††2000	166	415	6.92	7.21
March,	364	71	148	2.47	2.85
April,	102	50	71	1.18	1.32
May,	154	46	66	1.10	1.27
June,	100	46	69	1.15	1.28
July,	120	48	71	1.18	1.36
August,	††1700	100	218	3.63	4.18
September,	133	55	82	1.37	1.53
The year,	††4160	23	160	2.66	35.91

Note.—††Estimated.

DELAWARE BASIN—STATION NO. 10.

LEHIGH RIVER AT TANNERY, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge at Tannery, Carbon County.

RECORDS AVAILABLE—Discharge measurements and gage heights from June 24, 1914, to September 30, 1915. For other records on this river see Lehigh River at Bethlehem.

DRAINAGE AREA—335 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge and is read twice daily by Howard Flick.

CHANNEL—Both banks are high and not subject to overflow, and the bed is composed of large stones and gravel.

DISCHARGE MEASUREMENTS OF LEHIGH RIVER AT TANNERY, CARBON COUNTY, PA.

(Drainage area 335 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.ft.	
5	Jan. 16	Wilson & Gough, ...	249	5.00	1708	Surface msmt.
6	Feb. 3	Brady, ...	389	5.67	2364	Surface msmt.
7	Feb. 4	Brady, ...	367	5.52	1981	Surface msmt.
8	Feb. 18	Wilson, ...	427	5.44	2120	Surface msmt.
9	May 9	Wilson & Gough, ...	180	3.81	536	0.6 method.
10	Aug. 17	Reckord & Gough, ...	178	3.59	533	0.6 method.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF LEHIGH RIVER AT TANNERY, CARBON COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	2.78	‖2.57	2.80	3.00	5.10	5.85	3.30	3.92	3.92	3.09	3.27	4.12
2,	2.80	‖2.51	2.76	3.00	6.20	5.65	3.31	3.80	3.80	3.29	3.32	4.01
3,	2.78	‖2.51	2.72	3.00	5.67	5.44	3.38	3.70	3.80	3.61	3.39	3.89
4,	‖2.78	‖2.51	2.68	2.94	5.47	5.15	3.48	3.79	3.66	3.37	3.49	3.85
5,	2.78	‖2.50	2.68	2.91	5.00	4.95	3.45	4.15	3.58	3.45	4.52	3.79
6,	2.76	‖2.50	2.75	3.28	5.32	4.78	3.56	3.95	3.53	3.55	4.43	3.75
7,	2.77	‖2.50	2.82	6.16	5.22	4.48	3.60	3.85	3.50	3.49	4.31	3.67
8,	2.73	‖2.50	2.92	5.99	4.95	4.06	3.54	3.75	3.38	3.52	4.17	3.68
9,	2.73	2.52	2.98	5.96	4.80	3.89	3.42	3.77	3.26	3.55	4.15	3.68
10,	2.73	2.55	3.08	5.92	4.76	3.79	3.30	3.56	3.20	3.41	4.05	3.52
11,	‖2.72	2.56	3.11	5.91	4.71	3.98	†5.00	3.62	3.18	3.35	3.83	3.39
12,	‖2.70	2.57	3.09	5.96	4.70	3.84	5.38	3.50	3.76	3.23	3.69	3.37
13,	‖2.68	2.58	3.09	6.78	4.66	3.83	5.00	3.52	3.66	3.17	4.05	3.27
14,	‖2.66	2.59	3.10	5.22	4.62	3.83	4.70	3.47	3.53	3.25	3.89	3.25
15,	2.64	**2.60	3.10	‖5.11	5.10	3.84	4.42	3.45	3.56	3.25	3.79	3.21
16,	2.74	3.44	3.10	5.00	6.44	3.84	4.22	3.42	3.58	3.19	3.75	3.18
17,	2.79	3.32	3.10	‖5.34	5.65	3.89	4.00	3.52	3.56	3.07	3.63	3.15
18,	‖2.86	3.30	3.12	5.68	5.40	3.85	3.90	3.48	3.48	3.06	3.49	3.09
19,	2.93	3.28	3.17	5.28	5.35	3.90	3.90	3.42	3.43	3.03	3.37	3.07
20,	2.97	3.27	3.25	7.20	5.20	3.75	3.75	3.36	3.33	2.99	3.35	2.99
21,	2.90	3.28	3.30	6.75	5.05	3.90	3.68	3.48	3.32	3.09	3.37	3.53
22,	2.87	3.30	3.28	6.48	4.70	3.85	3.60	5.08	3.40	3.05	6.75	3.97
23,	2.82	3.22	3.25	6.40	4.61	3.74	3.75	4.45	3.60	3.01	6.17	3.89
24,	2.79	3.18	3.24	6.25	5.40	3.66	3.68	4.48	3.58	2.89	5.32	3.72
25,	‖2.69	3.16	3.26	6.32	7.00	3.61	3.68	4.55	3.64	2.87	5.17	3.52
26,	2.56	3.09	3.26	6.26	6.72	3.50	3.76	4.50	3.60	2.85	5.02	3.39
27,	2.54	3.04	3.22	6.12	6.45	3.42	3.76	4.46	3.43	3.39	4.27	3.32
28,	2.56	2.98	3.24	6.10	6.10	3.40	3.72	4.35	3.28	3.37	4.12	3.15
29,	2.58	2.93	3.24	5.52	....	3.42	3.95	4.15	3.18	3.32	4.37	3.07
30,	2.54	2.83	3.14	5.85	....	3.28	3.98	3.90	3.12	3.29	4.52	2.99
31,	2.50	....	3.08	5.72	....	3.32	....	3.98	....	3.29	4.32	....

Notes.—‖Interpolated. **Gage height taken from hydrograph. †Maximum 5.7 ft. at 11 P. M. from hydrograph.

DELAWARE BASIN—STATION NO. 11.

LEHIGH RIVER AT BETHLEHEM, PA.

DESCRIPTION OF STATION.

LOCATION—At nine span, steel, through-truss, highway bridge with three spans over the normal river channel, at New Street, Bethlehem, Northampton County.

RECORDS AVAILABLE—Discharge complete from September 22, 1902, to February 13, 1905, and from April 26, 1909, to September 30, 1915. For other records on this river see Lehigh River at Tannery.

DRAINAGE AREA—1,235 square miles.

GAGE—A standard chain gage, whose elevation of zero is 210.64 feet above mean sea level, is located on the downstream side of the bridge and is read twice daily by John E. Santee.

CHANNEL—The right bank is high and does not overflow, the left bank is low and overflows at high stages, and the bed is composed of sand and gravel.

REMARKS—The Lehigh Canal follows the left bank and passes over Monocacy Creek and under the left span of the bridge. Monocacy Creek passes under the canal on the left bank and under the bridge, entering the river a short distance below.

DISCHARGE MEASUREMENTS OF LEHIGH RIVER AT BETHLEHEM, NORTHAMPTON COUNTY, PA.

(Drainage area 1,235 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1914.		Sq. ft.	Feet.	Sec.ft.	
48	Oct. 2	Taylor & Brady, ...	618	1.67	529	0.6 method. 20 sec.-ft. flowing in canal.
	1915.					
49	May 10	Wilson & Gough, ...	914	2.63	1322	0.6 method.
50	Aug. 21	Reckord & Gough, ...	988	2.78	1525	0.6 method.

DISCHARGE TABLE FOR LEHIGH RIVER AT BETHLEHEM, NORTHAMPTON COUNTY, PA., FROM JANUARY 1, 1912.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.
1.50	255	.70	2920	.90	7880	.10	13790	.30	20450
.60	325	.80	3100	6.00	8130	.20	14080	.40	20770
.70	400	.90	3280	.10	8380	.30	14370	.50	21090
.80	480	4.00	3470	.20	8640	.40	14660	.60	21410
.90	565	.10	3670	.30	8900	.50	14950	.70	21740
2.00	655	.20	3870	.40	9160	.60	15240	.80	22070
.10	750	.30	4070	.50	9420	.70	15530	.90	22400
.20	850	.40	4280	.60	9680	.80	15820	11.00	22730
.30	950	.50	4500	.70	9940	.90	16120	.10	23070
.40	1060	.60	4720	.80	10200	9.00	16420	.20	23410
.50	1170	.70	4940	.90	10470	.10	16720	.30	23750
.60	1280	.80	5170	7.00	10740	.20	17020	.40	24090
.70	1400	.90	5400	.10	11010	.30	17320	.50	24430
.80	1530	5.00	5640	.20	11280	.40	17630	.60	24770
.90	1670	.10	5880	.30	11550	.50	17940	.70	25110
3.00	1810	.20	6130	.40	11820	.60	18250	.80	25450
.10	1950	.30	6380	.50	12100	.70	18560	.90	25790
.20	2100	.40	6630	.60	12380	.80	18870	12.00	26130
.30	2260	.50	6880	.70	12660	.90	19180		
.40	2420	.60	7130	.80	12940	10.00	19490		
.50	2580	.70	7380	.90	13220	.10	19810		
.60	2750	.80	7630	8.00	13500	.20	20130		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF LEHIGH RIVER AT BETHLEHEM, NORTHAMPTON COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.61	1.35	1.75	2.25	‡6.24	4.79	2.46	2.73	2.73	2.00	2.10	3.31
2,	1.66	1.57	1.70	2.14	8.00	4.37	2.38	2.69	2.68	2.00	2.82	3.11
3,	1.59	1.51	1.70	1.97	5.66	4.07	2.45	2.66	2.69	2.25	3.32	3.01
4,	1.48	1.44	1.64	1.96	5.38	3.83	2.47	2.68	2.59	2.55	4.85	2.96
5,	1.58	1.47	1.66	1.95	4.56	3.80	2.52	2.86	2.51	2.54	5.31	2.72
6,	1.56	1.51	1.59	1.95	5.90	3.71	2.48	2.84	2.43	2.46	4.80	2.83
7,	1.60	1.50	2.02	7.55	5.18	3.55	2.43	2.78	2.42	2.45	4.55	2.86
8,	1.68	1.58	3.59	6.50	4.77	3.50	2.48	2.76	2.37	2.29	4.28	2.79
9,	1.67	1.57	2.94	5.12	4.26	3.32	2.45	2.66	2.27	2.36	4.32	2.71
10,	1.52	1.55	2.76	4.28	3.90	3.28	2.43	2.61	2.19	2.22	4.02	2.65
11,	1.44	1.50	2.56	3.96	3.75	3.30	2.69	2.55	2.08	2.12	3.65	2.55
12,	1.61	1.51	2.44	4.35	3.84	3.26	3.63	2.51	2.09	2.13	3.45	2.49
13,	1.59	1.47	2.33	†10.96	4.00	3.18	3.41	2.46	2.46	2.11	4.21	2.36
14,	1.52	1.43	2.61	6.72	3.66	3.12	3.25	2.60	2.69	2.13	3.54	2.35
15,	1.53	1.66	2.27	5.63	4.00	3.19	3.18	2.44	2.47	2.08	3.40	2.31
16,	1.76	2.36	2.45	4.60	6.15	3.15	3.09	2.38	2.87	1.98	3.49	2.24
17,	1.97	2.55	2.40	4.54	5.49	3.03	2.95	2.46	2.53	2.00	3.35	2.23
18,	1.84	2.14	2.26	5.25	5.38	2.96	2.84	2.47	2.41	1.99	3.12	2.39
19,	1.82	1.96	2.20	6.71	4.36	3.01	2.76	2.41	2.38	1.92	2.96	2.63
20,	1.74	1.91	2.37	6.83	4.14	2.96	2.65	2.27	2.34	1.93	2.84	2.68
21,	1.73	1.85	2.44	5.77	3.49	2.93	2.64	2.86	2.26	1.99	2.78	2.68
22,	1.68	1.72	2.46	4.97	3.89	2.98	2.61	3.56	2.13	1.97	2.54	3.08
23,	1.68	1.68	2.35	4.69	3.77	2.85	2.62	3.55	2.16	2.02	6.24	2.73
24,	1.58	1.70	2.30	4.86	4.60	2.75	2.64	3.38	2.20	1.92	4.82	2.60
25,	1.46	1.68	2.23	4.46	3.57	2.67	2.60	3.33	2.17	1.91	4.35	2.45
26,	1.65	1.56	2.29	4.28	6.83	2.66	2.58	3.29	2.18	1.95	3.83	2.39
27,	1.56	1.71	2.42	4.02	5.82	2.68	2.59	3.26	2.17	2.02	3.02	2.32
28,	1.48	1.70	2.45	3.82	5.14	2.60	2.75	3.07	2.08	2.01	3.87	2.22
29,	1.47	1.68	2.25	3.51	....	2.57	2.74	2.90	2.01	2.20	3.66	2.15
30,	1.46	1.69	2.25	3.12	....	2.54	2.78	2.83	1.94	2.04	3.81	2.12
31,	1.42	....	2.30	3.08	....	2.49	....	2.92	....	1.99	3.70	....

Notes.—†Maximum 11.52 ft. at 10 a. m. ‡Maximum 10.20 ft. at 11 p. m. from hydrograph.

DAILY DISCHARGE, IN SECOND-FEET, OF LEHIGH RIVER AT BETHLEHEM, NORTHAMPTON COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	378	198	440	900	‡18740	5150	1170	1480	1480	700	795	2320
2,	415	349	400	790	13500	4220	1060	1430	1420	700	1600	2010
3,	363	307	400	628	7280	3610	1160	1400	1430	945	2340	1870
4,	286	258	355	619	6580	3150	1180	1420	1810	1270	5330	1800
5,	356	279	370	610	4630	3100	1240	1660	1230	1260	6450	1470
6,	342	307	318	610	7880	2940	1190	1630	1140	1170	5220	1620
7,	370	300	674	12200	6080	2660	1140	1550	1130	1160	4660	1660
8,	430	321	2730	9420	5100	2580	1190	1520	1070	985	4080	1560
9,	422	349	1730	5980	3990	2290	1160	1400	965	1060	4160	1460
10,	314	335	1480	4080	3280	2230	1140	1340	885	915	3560	1380
11,	258	300	1240	3390	3010	2260	1430	1270	776	815	2880	1270
12,	378	307	1100	4180	3170	2200	2850	1230	786	825	2540	1200
13,	363	279	983	†22600	3470	2070	2480	1170	1170	805	3940	1060
14,	314	251	1290	9990	2850	1980	2220	1320	1430	825	2690	1050
15,	321	415	920	7200	3470	2130	2120	1150	1180	728	2460	1010
16,	493	1060	1120	4720	3510	2070	1980	1080	1670	682	2610	935
17,	678	1270	1060	4590	6860	1900	1780	1170	1250	700	2380	925
18,	559	835	910	6260	6460	1800	1630	1180	1120	691	2020	1090
19,	542	664	850	9970	4200	1870	1520	1120	1080	628	1800	1360
20,	477	619	1030	10800	3750	1800	1380	965	1040	687	1630	1420
21,	469	568	1100	7560	2560	1760	1370	1060	955	691	1550	1420
22,	430	461	1130	5570	3260	1830	1340	2730	825	673	1260	1900
23,	430	430	1000	4920	3050	1640	1350	2710	855	719	8790	1480
24,	356	445	950	5310	4720	1510	1370	2350	895	628	5260	1320
25,	272	430	880	4410	15200	1410	1320	2350	865	619	4280	1160
26,	406	342	940	4030	10800	1400	1300	2290	875	655	3200	1090
27,	342	453	1080	3510	7680	1420	1310	2240	865	719	1880	1020
28,	286	445	1120	3140	5980	1320	1510	1950	776	710	2420	915
29,	279	356	900	2600	....	1290	1500	1720	710	895	2900	845
30,	272	438	900	1980	....	1260	1550	1620	646	738	3160	815
31,	244	....	950	1920	....	1200	....	1740	....	691	2960	....

Notes.—†Maximum=24500 sec.-ft. ‡Maximum=20100 sec.-ft. October 1 to November 30, 1914, and March 15 to September 30, 1915, inclusive, 45 sec.-ft. added to daily discharge for canal. Discharges below 255 sec.-ft. are estimated.

ESTIMATED MONTHLY DISCHARGE OF LEHIGH RIVER AT BETHLEHEM, NORTHAMPTON COUNTY, PA.

(Drainage area 1,235 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	673	††244	382	0.31	0.36
November,	1270	††198	446	0.36	0.40
December,	2730	318	979	0.79	0.91
1915.					
January,	24500	610	5290	4.28	4.93
February,	20100	2560	5910	4.78	4.98
March,	6150	1200	2200	1.78	2.05
April,	2850	1080	1500	1.21	1.35
May,	2730	965	1590	1.29	1.49
June,	1670	646	1060	0.86	0.96
July,	1270	619	814	0.66	0.76
August,	8790	795	3250	2.63	3.03
September,	2320	815	1350	1.09	1.22
The year,	24500	††198	2060	1.67	22.44

Note.—††Estimated.

DELAWARE BASIN—STATION NO. 12.

DELAWARE RIVER AT RIEGELSVILLE, N. J.

DESCRIPTION OF STATION.

LOCATION—At three span, steel, suspension highway bridge, between Riegelsville, Pa., and Riegelsville, N. J.

RECORDS AVAILABLE—Discharge complete from July 3, 1906, to September 30, 1915. For other records on this river, see Delaware River at Port Jervis, N. Y.; also Delaware River at Lambertville, N. J., in the 1911 Report of the Water Supply Commission.

DRAINAGE AREA—6,430 square miles.

GAGE—An inclined staff gage, whose elevation of zero is arbitrary, is located on the left bank under the upstream side of the bridge. A standard chain gage on the same datum is attached to the upstream handrail on the middle span of the bridge, and readings are sometimes taken with this gage during ice or flood conditions. Gage heights are observed twice daily by John H. Deemer.

CHANNEL—Both banks are high and not subject to overflow and the bed is composed of gravel and boulders.

REMARKS—The Delaware Division Canal runs along the Pennsylvania shore about 200 feet from the river and is measured at the highway bridge a short distance above the river bridge. The following data have been furnished by the United States Geological Survey:

DISCHARGE MEASUREMENT OF DELAWARE RIVER AT RIEGELSVILLE, N. J.

(Drainage area 6,430 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1914.		Sq. ft.	Feet.	Sec.ft.	
23	Nov. 17	Stevens, ...	3470	2.93	3170	Vertical velocity in 1st. and 2d spans; 0.2 and 0.8 method in 3d span; 214 sec.-ft. in canal on Nov. 16.

DISCHARGE TABLE FOR DELAWARE RIVER AT RIEGELSVILLE, N. J. FROM JULY 3, 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.
1.50	810	.70	8490	.90	21130	.10	38690	.30	60250
.60	930	.80	8820	8.00	21600	.20	39310	.40	60970
.70	1060	.90	9160	.10	22080	.30	39930	.50	61690
.80	1200	5.00	9500	.20	22560	.40	40560	.60	62410
.90	1350	.10	9840	.30	23050	.50	41190	.70	63130
2.00	1500	.20	10190	.40	23540	.60	41820	.80	63850
.10	1660	.30	10540	.50	24040	.70	42460	.90	64570
.20	1830	.40	10890	.60	24540	.80	43100	15.00	65300
.30	2010	.50	11250	.70	25050	.90	43750	.10	66030
.40	2200	.60	11610	.80	25560	12.00	44400	.20	66760
.50	2400	.70	11980	.90	26080	.10	45060	.30	67490
.60	2600	.80	12350	9.00	26600	.20	45720	.40	68220
.70	2810	.90	12720	.10	27130	.30	46380	.50	68950
.80	3030	6.00	13100	.20	27660	.40	47050	.60	69680
.90	3260	.10	13480	.30	28200	.50	47720	.70	70410
3.00	3500	.20	13860	.40	28750	.60	48390	.80	71140
.10	3750	.30	14250	.50	29300	.70	49060	.90	71870
.20	4000	.40	14640	.60	29860	.80	49740	16.00	72600
.30	4260	.50	15040	.70	30420	.90	50420	.10	73340
.40	4530	.60	15440	.80	30990	13.00	51100	.20	74080
.50	4800	.70	15850	.90	31560	.10	51790	.30	74820
.60	5080	.80	16260	10.00	32130	.20	52480	.40	75560
.70	5360	.90	16680	.10	32710	.30	53170	.50	76300
.80	5650	7.00	17100	.20	33290	.40	53870	.60	77050
.90	5950	.10	17530	.30	33880	.50	54570	.70	77800
4.00	6250	.20	17960	.40	34470	.60	55270	.80	78550
.10	6560	.30	18400	.50	35060	.70	55970	.90	79300
.20	6870	.40	18840	.60	35660	.80	56680	17.00	80050
.30	7190	.50	19290	.70	36260	.90	57390	18.00	87650
.40	7510	.60	19740	.80	36860	14.00	58100	19.00	95350
.50	7830	.70	20200	.90	37470	.10	58810	20.00	103150
.60	8160	.80	20660	11.00	38080	.20	59530		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF DELAWARE RIVER AT RIEGELSVILLE, N. J., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	2.0	1.85	2.6	2.9	6.5	8.8	3.8	4.8	4.0	2.65	3.5	5.3
2,	2.0	1.95	2.6	2.8	10.2	8.0	3.7	4.6	3.9	2.7	3.9	4.9
3,	2.0	1.9	2.5	2.65	10.8	7.4	3.7	4.5	3.8	3.8	4.2	4.5
4,	1.95	1.95	2.5	2.7	8.0	6.6	3.6	4.4	3.7	4.1	5.6	4.3
5,	1.9	1.85	2.5	2.7	7.4	6.2	3.9	4.5	3.6	4.2	7.8	4.0
6,	2.0	1.8	2.4	2.7	8.3	5.9	3.8	4.6	3.5	4.0	8.8	3.9
7,	1.95	1.9	2.6	8.4	9.5	5.9	3.9	4.5	3.4	3.9	7.5	4.0
8,	1.95	1.85	3.8	10.3	8.9	5.7	4.2	4.4	3.3	3.7	7.1	3.9
9,	2.0	1.9	3.8	10.8	7.6	5.4	4.3	4.3	3.2	3.7	6.9	3.9
10,	2.1	1.95	4.1	8.0	6.4	5.2	4.3	4.3	3.1	10.6	6.6	4.0
11,	2.0	1.95	3.8	6.8	5.8	5.0	4.8	4.2	3.0	7.5	5.8	3.7
12,	1.95	1.85	3.6	6.7	5.8	5.0	9.7	4.0	3.0	5.9	5.4	3.6
13,	2.0	1.85	3.4	13.8	6.2	4.8	10.6	4.1	3.1	5.2	5.7	3.4
14,	1.95	1.95	3.7	13.0	6.0	4.6	8.7	4.1	3.2	5.9	5.3	3.3
15,	1.85	1.85	3.1	10.4	6.4	4.6	7.4	3.9	3.0	5.9	5.0	3.3
16,	2.05	2.55	2.95	8.8	10.2	4.5	6.6	3.7	3.4	5.6	4.8	3.3
17,	2.35	2.95	2.9	7.8	12.4	4.5	6.1	3.8	3.2	4.8	4.7	3.2
18,	2.4	2.7	2.95	8.2	9.5	4.3	5.6	3.7	3.4	4.4	4.4	3.2
19,	2.5	2.7	2.85	11.8	8.2	4.2	5.3	3.8	3.5	4.5	4.1	3.5
20,	2.65	2.7	3.0	15.4	7.4	4.1	5.0	3.7	3.3	4.3	3.9	3.7
21,	2.5	2.95	3.2	12.6	7.0	4.0	4.9	3.6	3.3	4.2	3.8	4.8
22,	2.5	2.45	3.4	10.0	6.7	4.1	4.7	4.4	3.2	4.4	4.8	5.0
23,	2.4	2.4	2.9	8.6	6.6	4.0	4.6	5.8	3.1	4.1	7.2	6.2
24,	2.3	2.3	2.85	8.3	7.1	4.0	4.6	5.7	3.1	3.8	8.5	5.1
25,	2.35	2.25	2.8	7.9	14.6	3.9	4.6	5.6	3.0	3.7	7.0	4.4
26,	2.25	2.1	2.7	7.7	16.8	4.0	4.4	5.4	3.0	3.6	6.1	4.1
27,	2.2	2.25	2.6	7.1	13.5	4.0	4.3	5.0	2.95	3.6	5.8	4.0
28,	2.05	2.3	2.65	6.6	10.3	4.2	4.4	4.9	2.8	3.8	5.2	3.8
29,	1.95	2.35	2.7	6.1	....	4.1	4.2	4.7	2.75	3.8	5.0	3.8
30,	2.05	2.4	3.0	5.2	....	3.9	4.3	4.5	2.65	3.6	5.3	3.6
31,	2.0	....	3.0	4.6	....	3.9	....	4.3	....	3.6	5.5	....

DAILY DISCHARGE, IN SECOND-FEET, OF DELAWARE RIVER AT RIEGELSVILLE, N. J., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1500	1280	2600	3260	15000	25600	5650	8820	6250	2700	4800	10500
2,	1500	1420	2600	3030	33300	21600	5360	8160	5950	2810	5950	9160
3,	1500	1350	2400	2700	36900	18800	5360	7830	5650	5650	6870	7830
4,	1420	1420	2400	2810	21600	15400	5080	7510	5360	6560	11600	7190
5,	1350	1280	2400	2810	18800	13900	5950	7830	5080	6870	20700	6250
6,	1500	1200	2200	2810	23000	12700	5650	8160	4800	6250	25600	5950
7,	1420	1350	2600	23500	29300	12700	5950	7830	4530	5950	19800	6250
8,	1420	1280	5650	33900	26100	12000	6870	7510	4260	5360	17500	5950
9,	1500	1350	5650	36900	19700	10900	7190	7190	4000	5360	16700	5950
10,	1660	1420	6560	21600	14600	10200	7190	7190	3750	35700	15400	6250
11,	1500	1420	5650	16300	12400	9500	8820	6870	3500	19800	12400	5360
12,	1420	1280	5080	15800	12400	9500	30400	6250	3500	12700	10900	5080
13,	1500	1280	4530	56700	13900	8820	35700	6560	3750	10200	12000	4530
14,	1420	1420	5360	51100	13100	8160	25000	6560	4000	12700	10500	4260
15,	1280	1280	3750	34500	14600	8160	18800	5950	3500	12700	9500	4260
16,	1580	2500	3380	25600	33300	7830	15400	5360	4530	11600	8820	4260
17,	2100	3380	3260	20700	47000	7830	13500	5650	4000	8820	8490	4000
18,	2200	2810	3380	22600	29300	7190	11600	5360	4530	7510	7510	4000
19,	2400	2810	3140	43100	22600	6870	10500	5650	4800	7830	6560	4800
20,	2700	2810	3500	68200	18800	6560	9500	5360	4260	7190	5950	5360
21,	2400	3380	4000	48400	17100	6250	9160	5080	4260	6870	5650	8820
22,	2400	2800	4530	32100	15800	6560	8490	7510	4000	7510	8820	9500
23,	2200	2200	3260	24500	15400	6250	8160	12400	3750	6560	18000	13900
24,	2010	2010	3140	23000	17500	6250	8160	12000	3750	5650	24000	9840
25,	2100	1920	3080	21100	62400	5950	8160	11600	3500	5360	17100	7510
26,	1920	1660	2810	20200	78600	6250	7510	10900	3500	5080	13500	6560
27,	1830	1920	2600	17500	54600	6250	7190	9500	3380	5080	12400	6250
28,	1580	2010	2700	15400	33900	6870	7510	9160	3080	5650	10200	5650
29,	1420	2100	2810	13500	....	6560	6870	8490	2920	5650	9500	5650
30,	1580	2200	3500	10200	....	5950	7190	7830	2700	5080	10500	5080
31,	1500	....	3500	8160	....	5950	....	7190	....	5080	11200	....

Note.—Add 250 sec.-ft. for canal October 1 to December 10, 1914, and March 8 to September 30, 1915.

ESTIMATED MONTHLY DISCHARGE OF DELAWARE RIVER AT RIEGELSVILLE, N. J.

(Drainage area 6,430 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	2700	1280	1740	0.31	0.36
November,	3380	1200	1870	0.33	0.37
December,	6560	2200	3610	0.57	0.66
1915.					
January,	68200	2700	23300	3.62	4.17
February,	78600	12400	26800	4.17	4.34
March,	25600	5950	9780	1.55	1.79
April,	35700	5080	10600	1.68	1.87
May,	12400	5080	7720	1.24	1.43
June,	6250	2700	4160	0.69	0.77
July,	35700	2700	8300	1.33	1.53
August,	25600	4800	12200	1.93	2.22
September,	13900	4000	6530	1.05	1.17
The year,	78600	1200	9620	1.53	20.68

Note.—In order to determine the discharge per square mile and the run-off depth in inches, 250 sec.-ft. were added October 1 to December 10, 1914, and March 8 to September 30, 1915, before computing the discharge per square mile. Hence the first three columns indicate the actual quantity of water available in the river and the two remaining columns represent the actual run-off from the drainage area above Riegelsville, including the discharge of the canal.

DELAWARE BASIN— STATION NO. 13.

SCHUYLKILL RIVER AT SCHUYLKILL HAVEN, PA.

DESCRIPTION OF STATION.

LOCATION—At five arch, stone masonry, P. & R. Railroad Bridge at Schuylkill Haven, Schuylkill County.

RECORDS AVAILABLE—Discharge complete from May 7, 1914, to September 30, 1915. For other records on this river see Schuylkill River at Reading and Conshohocken; also Schuylkill River at Fairmount Dam, Philadelphia, in the 1910-11 and 1912 Reports of the Water Supply Commission.

DRAINAGE AREA—127 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge and is read twice daily by Edward Zimmerman.

CHANNEL—Both banks are high and not subject to overflow, and the bed is culm covered and not permanent.

DISCHARGE MEASUREMENTS OF SCHUYLKILL RIVER AT SCHUYLKILL HAVEN, SCHUYLKILL COUNTY, PA.

(Drainage area 127 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec. ft.	
7	Jan. 13	Bowen & Brady, ...	638	5.39	2650	Surface measurement.
8	Jan. 14	Bowen & Stocker, ...	460	4.33	1370	Surface measurement.
9	Jan. 15	Bowen & Stocker, ...	383	3.90	1010	0.6 method.
10	Jan. 16	Bowen & Stocker, ...	342	3.60	801	0.6 method.
11	Feb. 10	Bowen & Brady, ...	208	2.75	439	0.6 method.
12	Sept. 17	Hosmer & Shade, ...	89	1.79	155	0.6 method.

DISCHARGE TABLE FOR SCHUYLKILL RIVER AT SCHUYLKILL HAVEN, SCHUYLKILL COUNTY, PA., FROM MAY 7, 1914 TO JANUARY 6, 1915.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
0.60	50	.10	88	.60	170	.10	310	.60	556
.70	55	.20	102	.70	194	.20	350	.70	622
.80	62	.30	116	.80	218	.30	392		
.90	70	.40	132	.90	246	.40	442		
1.00	78	.50	150	2.00	276	.50	496		

DISCHARGE TABLE FOR SCHUYLKILL RIVER AT SCHUYLKILL HAVEN, SCHUYLKILL COUNTY, PA., FROM JANUARY 7, 1915.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
0.60	60	.60	139	.60	376	.60	808	.60	1675
.70	62	.70	155	.70	409	.70	870	.70	1795
.80	66	.80	173	.80	444	.80	938	.80	1915
.90	71	.90	193	.90	480	.90	1010	.90	2035
1.00	77	2.00	215	3.00	518	4.00	1085	5.00	2155
.10	84	.10	238	.10	559	.10	1165	.10	2280
.20	92	.20	262	.20	603	.20	1250	.20	2405
.30	102	.30	288	.30	649	.30	1340	.30	2530
.40	113	.40	316	.40	698	.40	1440	.40	2655
.50	125	.50	345	.50	751	.50	1555	.50	2785

Note.—This table is only applicable subsequent to January 6, 1915, and is based on 6 discharge measurements made during 1915, together with former curve.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF SCHUYLKILL RIVER AT SCHUYLKILL HAVEN, SCHUYLKILL COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	....	1.39	0.96	1.06	0.94
2,	....	1.36	1.16	1.00	0.93
3,	....	1.31	1.06	1.04	0.95
4,	....	1.55	0.96	0.95	0.93
5,	....	1.50	0.95	0.89	0.89
6,	....	1.32	0.95	0.90	0.91
7,	2.22	1.34	1.30	0.88	0.88
8,	2.12	1.40	1.20	0.90	0.85
9,	2.43	1.33	0.98	0.92	0.84
10,	2.24	1.35	1.08	0.90	0.77
11,	2.18	1.33	1.34	1.09	0.84
12,	2.33	1.33	1.11	0.92	0.86
13,	2.55	1.29	1.05	0.94	0.86
14,	2.48	1.31	1.69	0.84	0.77
15,	2.43	1.36	2.06	0.79	0.77
16,	2.33	1.22	1.82	0.78	0.76
17,	2.23	1.20	1.90	0.80	0.75
18,	2.14	1.20	1.69	0.78	0.72
19,	2.02	1.19	1.56	0.79	0.74
20,	1.96	1.21	1.40	1.24	0.78
21,	1.85	1.17	1.29	1.78	0.79
22,	1.78	1.22	1.21	1.30	0.79
23,	1.76	1.11	1.19	1.12	0.78
24,	1.67	1.12	1.20	1.02	0.90
25,	1.55	1.09	1.13	0.97	0.90
26,	1.52	1.06	1.09	0.96	0.78
27,	1.56	1.11	1.09	0.96	0.78
28,	1.65	1.08	1.81	1.04	0.78
29,	1.48	1.42	1.83	1.11	0.74
30,	1.51	1.12	1.22	1.07	0.70
31,	1.43	....	1.17	1.00	....

DAILY MEAN GAGE HEIGHTS, IN FEET, OF SCHUYLKILL RIVER AT SCHUYLKILL HAVEN, SCHUYLKILL COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.74	0.76	0.78	1.27	3.53	2.96	1.37	1.22	1.26	1.30	1.75	2.72
2,	0.74	0.70	0.80	1.20	4.13	2.79	1.35	1.11	1.42	2.09	2.86	2.52
3,	0.76	0.72	0.80	1.15	3.69	2.68	1.34	1.09	1.47	1.74	3.03	2.50
4,	0.78	0.67	0.82	1.21	3.35	2.54	1.29	1.27	1.24	2.16	3.62	2.43
5,	0.75	0.70	0.77	2.02	3.09	2.43	1.24	1.83	1.18	1.96	3.55	2.41
6,	0.74	0.68	0.87	1.86	3.70	2.43	1.28	1.17	1.16	1.72	3.45	2.48
7,	0.88	0.76	1.74	4.53	3.34	2.37	1.21	1.16	1.16	1.56	3.12	2.43
8,	0.70	0.76	1.84	3.74	3.17	2.40	1.19	1.17	1.08	1.98	2.92	2.30
9,	0.68	0.74	1.58	3.40	3.01	2.22	1.15	1.12	1.09	1.89	2.99	2.14
10,	0.70	0.68	1.53	3.06	2.79	2.10	1.13	1.11	1.10	1.69	2.74	2.08
11,	0.70	0.69	1.46	3.07	2.71	2.06	1.83	1.12	1.07	1.71	2.00	2.03
12,	0.72	0.73	1.42	3.98	2.73	2.02	1.75	1.15	1.16	1.75	2.77	2.10
13,	0.72	0.65	1.46	‡5.29	2.70	1.96	1.59	1.17	1.12	1.63	2.61	1.98
14,	0.68	0.71	1.68	4.31	2.65	1.97	1.41	1.11	1.14	1.48	2.41	1.91
15,	0.77	1.12	1.44	3.86	3.64	1.97	1.41	1.06	1.34	1.42	2.73	1.81
16,	1.21	1.47	1.46	3.53	3.73	1.93	1.41	1.09	0.98	1.93	2.47	1.88
17,	0.98	0.98	1.34	3.87	3.49	1.85	1.34	1.11	0.97	1.51	2.85	1.81
18,	0.93	0.82	1.30	3.65	3.20	1.78	1.31	1.04	0.92	1.44	2.27	1.82
19,	0.78	0.92	1.48	4.00	3.05	1.76	1.33	1.01	0.95	1.40	2.25	2.21
20,	0.73	0.86	1.52	3.70	2.89	1.76	1.31	1.03	1.12	1.46	2.12	1.82
21,	0.75	0.76	1.55	3.50	2.79	1.74	1.23	1.29	0.86	1.34	2.20	1.84
22,	0.74	0.78	1.47	3.26	2.71	1.74	1.21	1.75	1.01	1.26	4.71	1.82
23,	0.74	0.73	1.34	3.22	2.57	1.72	1.30	1.51	0.97	1.21	4.00	1.72
24,	0.70	0.82	1.35	3.08	§4.04	1.64	1.25	1.67	0.83	1.27	3.56	1.70
25,	0.70	0.78	1.34	3.02	4.36	1.63	1.18	1.60	0.82	1.15	3.35	1.64
26,	0.71	0.79	1.27	2.87	3.75	1.56	1.19	1.51	0.90	1.19	3.11	1.70
27,	0.60	0.84	1.99	2.74	3.43	1.52	1.16	1.44	0.85	1.64	2.95	1.65
28,	0.70	0.82	2.65	2.68	3.19	1.52	1.26	1.41	0.84	1.60	2.93	1.55
29,	0.80	0.80	†2.22	2.61	....	1.45	1.28	1.41	0.69	1.32	3.15	1.50
30,	0.68	0.78	1.57	2.47	....	1.42	1.31	1.45	0.80	1.28	2.99	1.44
31,	0.72	....	1.36	2.50	....	1.38	....	1.34	....	1.34	2.83	....

Notes.—†Maximum 2.75 ft. at 4:39 p. m. ‡Maximum 5.70 ft. at 4 a. m. from hydrograph. §Maximum 4.80 ft. at 9 p. m. from hydrograph.

DAILY DISCHARGE, IN SECOND-FEET, OF SCHUYLKILL RIVER AT SCHUYLKILL HAVEN, SCHUYLKILL COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	....	130	75	84	73
2,	....	126	96	78	72
3,	....	118	84	82	74
4,	....	160	75	74	72
5,	....	150	74	69	69
6,	....	119	74	70	71
7,	358	122	116	68	68
8,	318	132	102	70	66
9,	458	121	76	72	65
10,	367	124	86	70	60
11,	342	121	122	87	65
12,	407	121	89	72	67
13,	526	115	83	73	67
14,	485	118	192	65	60
15,	458	126	296	61	60
16,	407	105	224	61	59
17,	363	102	246	62	58
18,	326	102	192	61	56
19,	283	101	162	61	58
20,	264	103	132	108	61
21,	232	98	115	213	61
22,	213	105	103	118	61
23,	208	89	101	91	61
24,	187	91	102	80	70
25,	160	87	92	76	70
26,	154	84	97	75	61
27,	162	89	87	75	61
28,	182	86	221	82	61
29,	146	136	226	89	58
30,	152	91	105	85	55
31,	137	....	98	78	....

DAILY DISCHARGE, IN SECOND-FEET, OF SCHUYLKILL RIVER AT SCHUYLKILL HAVEN, SCHUYLKILL COUNTY PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	58	59	61	108	768	503	110	94	98	102	164	416
2,	58	55	62	99	1190	440	108	85	115	236	466	351
3,	59	56	62	94	864	402	106	83	121	162	530	345
4,	61	54	64	100	674	357	101	99	96	252	820	325
5,	58	55	60	243	555	325	96	105	90	206	780	319
6,	58	54	68	120	870	325	100	90	89	159	724	339
7,	68	59	183	1590	669	308	93	89	89	133	568	325
8,	55	59	203	897	590	316	91	90	83	211	488	288
9,	54	58	154	698	522	267	88	86	83	191	514	248
10,	55	54	145	643	440	238	86	85	84	158	429	233
11,	55	54	134	547	412	229	179	86	82	157	215	222
12,	56	57	128	1070	420	220	164	88	89	164	433	238
13,	56	52	134	‡2520	409	206	138	90	86	144	379	211
14,	54	56	171	1350	392	208	114	85	87	123	319	195
15,	60	90	131	981	833	208	114	81	106	115	420	175
16,	100	136	134	768	890	200	114	83	76	200	336	189
17,	76	76	117	683	746	183	106	85	75	126	302	175
18,	72	64	112	839	603	169	103	80	72	118	280	177
19,	61	72	137	1080	538	166	105	78	74	113	275	265
20,	57	67	143	870	476	166	103	79	86	120	243	177
21,	58	59	148	751	440	162	95	101	69	106	262	181
22,	58	61	136	631	412	162	93	164	78	98	1810	177
23,	58	57	117	612	367	159	102	126	75	93	1080	159
24,	55	64	118	551	§1120	145	97	150	68	99	785	155
25,	55	61	117	526	1400	144	90	139	67	88	674	145
26,	56	61	108	469	904	133	91	126	71	91	563	155
27,	50	65	236	423	714	128	89	118	68	145	499	147
28,	55	64	408	402	599	128	98	114	68	139	491	132
29,	62	62	†290	379	....	119	100	114	62	104	581	125
30,	54	61	152	336	....	116	103	119	66	100	514	118
31,	56	....	120	345	....	111	....	106	....	106	455	....

Notes.—†Maximum=426 sec.-ft. ‡Maximum=3040 sec.-ft. §Maximum=1920 sec.-ft.

ESTIMATED MONTHLY DISCHARGE OF SCHUYLKILL RIVER AT SCHUYLKILL HAVEN, SCHUYLKILL COUNTY, PA.

(Drainage area 127 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
June,	160	84	112	0.88	0.98
July,	296	74	127	1.00	1.15
August,	213	61	81	0.64	0.74
September,	74	55	64	0.50	0.56
1914.					
October,	100	50	60	0.47	0.54
November,	195	52	63	0.50	0.56
December,	426	60	140	1.10	1.27
1915.					
January,	3040	94	665	5.24	6.04
February,	1920	367	672	5.29	5.51
March,	503	111	224	1.76	2.03
April,	179	86	106	0.83	0.93
May,	164	78	101	0.79	0.91
June,	121	62	82	0.64	0.71
July,	252	88	140	1.10	1.27
August,	1810	164	529	4.17	4.81
September,	416	118	224	1.76	1.96
The year,	3040	50	250	1.97	26.54

DELAWARE BASIN—STATION NO. 14.

LITTLE SCHUYLKILL RIVER AT MOLINO, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge at Molino, Schuylkill County.

RECORDS AVAILABLE—Discharge measurements and gage heights from May 7, 1914, to September 30, 1915.

DRAINAGE AREA—132 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge and is read twice daily by Frank A. Schickram.

CHANNEL—Both banks are low but not subject to overflow, and the bed is culm covered and is not permanent.

DISCHARGE MEASUREMENTS OF LITTLE SCHUYLKILL RIVER AT MOLINO, SCHUYLKILL COUNTY, PA.

(Drainage area 132 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec. ft.	
8	Jan. 15	Bowen & Stocker,	400	3.23	1182	0.6 method.
9	Feb. 10	Bowen & Brady,	229	2.08	467	0.6 method.
10	Sept. 17	Hosmer & Shade,	97	0.90	137	0.6 method.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF LITTLE SCHUYLKILL RIVER AT MOLINO, SCHUYLKILL COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.60	0.62	0.77	2.56	3.88	2.21	0.86	0.67	0.97	0.57	0.75	1.77
2,	0.58	0.60	0.74	2.62	3.66	2.05	0.83	0.83	1.07	0.67	3.61	1.63
3,	0.53	0.56	0.77	2.48	3.12	1.84	0.82	0.83	1.09	1.53	3.17	1.55
4,	0.62	0.54	0.63	2.51	2.70	1.73	0.81	0.94	0.95	1.61	3.80	1.51
5,	0.60	0.56	0.56	2.42	2.47	1.61	0.79	1.17	0.87	1.23	3.76	1.46
6,	0.58	0.53	0.66	2.51	3.44	1.70	0.77	0.93	0.90	1.13	3.61	1.50
7,	0.62	0.55	1.80	4.85	2.86	1.64	0.76	0.95	0.83	0.97	3.08	1.47
8,	0.72	0.55	2.43	3.78	2.51	1.54	0.74	0.93	0.77	1.01	2.67	1.37
9,	0.60	0.54	1.95	3.12	2.28	1.40	0.73	0.82	0.69	1.24	2.63	1.27
10,	0.64	0.48	1.75	2.60	2.09	1.25	0.73	0.77	0.64	0.98	2.27	1.19
11,	0.62	0.62	1.70	2.92	1.98	1.27	1.23	0.79	0.63	0.93	2.05	1.15
12,	0.58	0.63	1.62	3.60	1.94	1.29	1.15	0.81	0.76	1.02	2.09	1.07
13,	0.58	0.56	1.56	†5.65	2.08	1.17	0.95	0.86	0.70	0.93	2.37	1.00
14,	0.60	0.58	2.18	3.96	1.86	1.16	0.85	0.72	0.87	0.89	2.05	1.03
15,	0.60	0.78	1.79	3.23	3.11	1.17	0.87	0.79	1.11	0.81	2.00	1.02
16,	1.06	1.82	1.90	2.80	3.12	1.15	0.83	0.73	1.17	0.90	1.99	0.95
17,	1.04	1.28	1.97	2.58	2.77	1.08	0.91	0.74	0.92	0.87	1.77	0.90
18,	0.86	1.00	2.05	2.98	2.45	1.03	0.87	0.67	0.82	0.87	1.63	0.92
19,	0.78	0 92	2.24	3.60	2.25	0.98	0.88	0.79	0.81	0.76	1.51	1.39
20,	0.72	0.89	1.94	3.20	2.14	1.00	0.88	0.63	0.79	1.21	1.47	0.98
21,	0.67	0.96	1.95	3.00	2.04	0.96	0.79	0.78	0.75	0.87	1.42	1.20
22,	0.61	0.99	1.94	2.62	1.98	0.92	0.77	1.55	0.77	0.77	4.87	1.11
23,	0.60	0.75	1.92	2.57	1.92	0.96	0.86	1.27	0.93	0.77	3.64	0.96
24,	0.61	0.79	2.14	2.50	‡3.42	0.94	0.81	1.21	0.77	0.73	3.37	0.92
25,	0.64	0.90	2.27	2.35	4.30	0.82	0.77	1.28	0.72	0.69	2.79	0.81
26,	0.63	0.82	*2.82	2.20	4.41	0.77	0.66	1.25	0.66	0.78	2.69	0.85
27,	0.62	0.82	3.02	2.06	2.86	0.77	0.64	1.16	0.64	1.39	2.05	0.86
28,	0.66	0.79	3.05	1.94	2.50	0.83	0.97	1.09	0.55	0.97	1.96	0.80
29,	0.65	0.74	3.06	1.78	....	0.86	0.83	1.07	0.47	0.89	2.35	0.79
30,	0.64	0.74	3.20	1.66	....	0.86	0.81	1.05	0.45	0.81	2.05	0.74
31,	0.64	....	2.90	1.72	....	0.86	....	1.06	....	0.76	1.91	....

Notes.—*River frozen December 26, 1914, to January 6, 1915, inclusive. †Maximum 7.00 ft. at 1 a. m., from hydrograph. ‡Maximum 4.80 ft. at 8 p. m. from hydrograph.

DELAWARE BASIN—STATION NO. 15.

SCHUYKILL RIVER AT READING, PA.

DESCRIPTION OF STATION.

LOCATION—At concrete viaduct at Penn Street, Reading, Berks County.

RECORDS AVAILABLE—Discharge complete from May 6, 1914, to September 30, 1915. For other records on this river see Schuylkill River at Schuylkill Haven and Conshohocken; also Schuylkill River at Fairmount Dam, Philadelphia, in the 1910-11 and 1912 Reports of the Water Supply Commission.

DRAINAGE AREA—900 square miles.

GAGE—A standard chain gage, whose elevation of zero is 207.65 feet above mean sea level, is located on the downstream side of the bridge and is read twice daily by C. J. Richards.

CHANNEL—The right bank is high and not subject to overflow, the left bank is low and liable to overflow, and the bed is composed of gravel.

REMARKS—The Schuylkill Navigation Company Canal runs along the left bank of the river.

DISCHARGE MEASUREMENTS OF SCHUYLKILL RIVER AT READING, BERKS COUNTY, PA.

(Drainage area 900 square miles).

No.	Date.		Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.			Sq. ft.	Feet.	Sec. ft.	
9	Jan.	8	Bowen & Higgins, ...	1588	4.70	8792	Surface measurement.
10	Jan.	8	Bowen & Higgins, ...	1497	4.32	7404	Surface measurement.
11	Jan.	9	Bowen & Higgins, ...	1273	3.43	4761	Surface measurement.
12	Jan.	9	Bowen & Higgins, ...	1179	3.11	4175	Surface measurement.
13	Jan.	13	Bowen & Brady, ...	4561	11.85	26508	Surface msmt. Includes discharge of canal.
14	Jan.	14	Bowen & Stocker, ...	1944	6.19	11420	Surface measurement.
15	Jan.	14	Bowen & Stocker, ...	1710	5.33	9160	Surface measurement.
16	Sept.	16	Hosmer & Shade, ...	527	0.18	694	0.6 method.

DISCHARGE TABLE FOR SCHUYLKILL RIVER AT READING, BERKS COUNTY, PA, FROM OCTOBER 1, 1914.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
—1.20	120	.50	1500	.20	6620	.90	13700	.60	20855
—1.10	135	.60	1610	.30	6870	7.00	13965	.70	21120
—1.00	155	.70	1730	.40	7120	.10	14230	.80	21385
—.90	175	.80	1850	.50	7380	.20	14495	.90	21650
—.80	195	.90	1970	.60	7640	.30	14760	10.00	21915
—.70	220	2.00	2100	.70	7900	.40	15025	.10	22180
—.60	245	.10	2240	.80	8160	.50	15290	.20	22445
—.50	270	.20	2390	.90	8420	.60	15555	.30	22710
—.40	300	.30	2550	5.00	8680	.70	15820	.40	22975
—.30	335	.40	2720	.10	8940	.80	16085	.50	23240
—.20	375	.50	2900	.20	9200	.90	16350	.60	23505
—.10	415	.60	3080	.30	9460	8.00	16615	.70	23770
0.00	455	.70	3270	.40	9725	.10	16880	.80	24035
.10	500	.80	3460	.50	9990	.20	17145	.90	24300
.20	550	.90	3660	.60	10255	.30	17410	11.00	24565
.30	600	3.00	3870	.70	10520	.40	17675	.10	24830
.40	660	.10	4080	.80	10785	.50	17940	.20	25095
.50	720	.20	4290	.90	11050	.60	18205	.30	25360
.60	780	.30	4500	6.00	11315	.70	18470	.40	25625
.70	840	.40	4720	.10	11580	.80	18735	.50	25890
.80	910	.50	4950	.20	11845	.90	19000	.60	26155
.90	980	.60	5180	.30	12110	9.00	19265	.70	26420
1.00	1060	.70	5410	.40	12375	.10	19530	.80	26685
.10	1140	.80	5640	.50	12640	.20	19795	.90	26950
.20	1220	.90	5880	.60	12905	.30	20060	12.00	27215
.30	1310	4.00	6120	.70	13170	.40	20325		
.40	1400	.10	6370	.80	13435	.50	20590		

Note.—This table is based on seven discharge measurements made in January, 1915, together with former curve.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF SCHUYLKILL RIVER AT READING, BERKS COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	—1.20	—1.60	—0.95	0.40	3.62	2.58	—0.07	0.16	0.23	—0.64	—0.26	1.54
2,	—1.05	—1.05	—0.98	—0.12	§7.47	2.31	—0.03	0.16	0.25	—0.32	3.11	1.19
3,	—0.90	—1.15	—1.15	—0.35	4.52	2.01	0.37	0.39	0.87	1.38	3.24	1.14
4,	—1.45	—1.05	—1.05	—0.25	3.45	1.74	0.50	0.32	0.33	0.76	3.34	1.02
5,	—1.40	—1.15	—0.72	—0.35	2.82	1.71	0.43	0.64	0.20	0.56	4.58	0.99
6,	—1.15	—1.02	—0.95	—0.38	4.64	1.81	0.30	0.34	0.20	0.46	5.04	0.99
7,	—1.20	—1.15	0.90	7.23	4.17	1.51	0.20	0.74	0.05	0.36	4.11	1.09
8,	—1.08	—1.15	3.28	4.48	3.42	1.44	0.15	0.39	0.00	0.44	3.11	0.96
9,	—1.00	—0.95	2.40	3.25	2.62	1.26	0.00	0.14	—0.05	0.96	3.31	0.59
10,	—1.10	—0.95	1.10	2.60	2.22	1.21	0.10	0.09	—0.15	0.41	2.81	0.46
11,	—1.00	—0.98	0.95	2.02	2.09	1.28	0.63	0.14	—0.17	0.04	2.26	0.39
12,	—1.02	—0.90	0.70	3.25	1.97	1.48	0.67	0.06	—0.10	0.21	2.01	0.32
13,	—1.20	—1.02	0.40	‡11.83	2.42	1.46	0.10	0.44	—0.09	0.06	3.46	0.36
14,	—1.28	—1.08	1.45	5.76	1.87	1.11	0.00	0.16	0.25	0.41	2.34	0.32
15,	—1.18	—0.92	0.45	4.22	2.55	1.01	—0.10	—0.01	—0.03	0.01	2.86	0.32
16,	—0.80	†0.75	0.55	3.29	4.27	0.96	0.07	—0.06	0.97	—0.12	2.86	0.10
17,	—0.10	1.10	0.95	2.74	3.27	0.94	0.30	0.06	0.33	0.28	2.11	0.10
18,	—1.05	—1.05	0.45	3.71	2.79	0.94	0.15	—0.01	—0.05	0.06	1.64	0.32
19,	—0.70	—0.62	0.42	4.81	2.42	0.88	0.20	—0.49	—0.13	—0.03	1.51	0.88
20,	—0.85	—0.75	0.65	4.19	2.25	0.98	0.03	—0.29	—0.35	—0.04	1.31	0.58
21,	—0.90	—0.60	0.80	3.41	2.02	0.94	0.10	—0.01	—0.37	—0.04	1.11	1.45
22,	—1.05	—1.05	0.98	3.14	1.87	0.76	—0.05	1.03	—0.45	—0.09	3.51	1.75
23,	—1.02	—1.05	0.65	2.71	1.79	0.74	—0.05	1.02	—0.33	—0.16	3.68	1.28
24,	—0.88	—1.25	0.02	2.91	2.45	0.68	0.00	0.89	—0.13	—0.14	2.74	0.78
25,	—1.10	—1.15	0.38	2.44	6.15	0.58	—0.10	1.02	—0.23	—0.26	2.66	0.62
26,	—0.90	—0.90	0.18	2.44	4.42	0.46	—0.05	0.66	—0.33	—0.22	1.41	0.50
27,	—0.98	—0.85	—0.25	2.21	3.42	0.41	0.00	0.72	—0.37	1.14	1.51	0.55
28,	—1.10	—0.88	—0.02	2.11	2.85	0.46	0.10	0.62	—0.50	0.21	1.31	0.40
29,	—1.10	—0.95	—0.05	1.94	....	0.34	0.37	0.39	—0.25	0.61	1.78	0.22
30,	—1.38	—0.98	0.72	1.44	....	—0.04	0.25	0.46	—0.45	0.06	2.01	0.18
31,	—1.15	....	0.70	1.41	....	—0.04	....	0.41	....	0.01	1.71	....

Notes.—†Maximum 1.30 ft. at midnight from hydrograph. ‡Maximum 12.30 ft. at 12:30 p. m. §Maximum 9.07 ft. at 2 a. m. from hydrograph.

DAILY DISCHARGE, IN SECOND-FEET, OF SCHUYLKILL RIVER AT READING, BERKS COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	170	120	215	660	5230	3040	427	530	565	285	401	1590
2,	195	195	209	407	§15200	2570	443	530	575	378	4150	1260
3,	225	178	178	318	7430	2110	642	654	959	1430	4420	1220
4,	135	195	195	355	4840	1780	720	612	618	932	4640	1130
5,	140	178	265	318	3500	1740	678	804	550	806	7640	1100
6,	178	201	215	307	7740	1860	600	624	550	746	8830	1100
7,	170	178	225	14600	6540	1510	550	868	478	686	6440	1180
8,	189	178	4510	7830	4770	1440	525	654	455	734	4150	1080
9,	205	215	2770	4400	3120	1270	455	520	435	1080	4570	804
10,	185	215	1190	3080	2420	1230	500	496	395	716	3530	746
11,	205	209	1070	2130	2230	1290	798	520	387	523	2540	704
12,	201	225	890	4400	2060	1480	822	482	415	605	2160	662
13,	170	201	710	‡26800	2760	1460	500	684	419	532	4910	686
14,	158	189	1500	10700	1930	1150	455	530	575	716	2670	662
15,	173	221	740	6670	2990	1070	415	451	443	510	3630	662
16,	245	†925	800	4480	6800	1030	486	428	1040	457	3630	550
17,	465	1190	1070	3350	4440	1010	600	482	618	640	2300	550
18,	195	195	740	5430	3440	1010	525	451	435	532	1710	662
19,	270	290	722	8190	2760	966	550	273	403	497	1560	1020
20,	235	258	860	6600	2470	1040	468	339	318	489	1370	818
21,	225	295	960	4740	2130	1010	500	451	310	489	1200	1500
22,	195	195	1090	4160	1930	882	435	1080	285	469	5020	1840
23,	201	195	810	3290	1840	868	435	1080	324	441	5410	1340
24,	229	162	464	3680	2810	828	455	973	403	449	3400	946
25,	185	178	648	2790	11700	768	415	1080	363	401	3240	842
26,	225	225	540	2790	7170	696	435	816	324	417	1460	770
27,	209	235	355	2410	4770	666	455	854	360	1220	1560	800
28,	185	229	447	2260	3560	696	500	792	320	605	1320	710
29,	185	215	435	2020	....	624	642	654	405	836	1880	610
30,	143	209	854	1440	....	439	575	696	335	532	2160	590
31,	178	....	840	1410	....	439	....	684	....	510	1790	....

Notes.—†Maximum=1360 sec.-ft. ‡Maximum=28200 sec-ft. §Maximum=19400 sec.-ft. October 1 to December 22, 1914, and June 27 to September 30, 1915, inclusive, 50 sec.-ft. added to daily discharge for canal. Discharges above 27215 sec.-ft. and below 120 sec.-ft. are estimated.

ESTIMATED MONTHLY DISCHARGE OF SCHUYLKILL RIVER AT READING, BERKS COUNTY, PA.

(Drainage area 900 square miles)

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	465	††135	202	0.22	0.25
November,	1360	††120	263	0.29	0.32
December,	4510	178	855	0.95	1.10
1915.					
January,	††28200	307	4560	5.07	5.84
February,	19400	1840	4590	5.10	5.31
March,	3040	439	1220	1.36	1.57
April,	822	415	534	0.59	0.66
May,	1080	273	648	0.72	0.83
June,	1040	285	469	0.52	0.58
July,	1430	285	634	0.70	0.81
August,	8830	401	3340	3.71	4.28
September,	1840	550	938	1.04	1.16
The year,	††28200	††120	1520	1.75	22.71

Note.—††Estimated.

DELAWARE BASIN—STATION NO. 16.

PERKIOMEN CREEK AT GRATERS FORD, PA.

DESCRIPTION OF STATION.

LOCATION—At two span, pony truss, highway bridge at Graters Ford, Montgomery County.

RECORDS AVAILABLE—Discharge complete from June 11, 1914, to September 30, 1915. For other records on this creek see Perkiomen Creek at Frederick, or Springmount, in the 1910-11 and 1912 reports of the Water Supply Commission.

DRAINAGE AREA—280 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge and is read twice daily by I. H. Smoyer.

CHANNEL—The right bank is high and not subject to overflow, the left bank is of medium height and overflows during extreme stages, and the bed is composed of rock and gravel.

DISCHARGE MEASUREMENTS OF PERKIOMEN CREEK AT GRATERS FORD, MONTGOMERY COUNTY, PA.

(Drainage area 280 square miles).

No.	Date.		Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.			Sq. ft.	Feet.	Sec. ft.	
3	Jan.	14	Matthes,	571	4.53	1168	0.6 method.
4	Jan.	14	Matthes,	534	4.33	959	0.6 method.
5	Jan.	14	Matthes,	530	4.26	924	0.6 method.
6	Jan.	19	Reckord,	973	6.58	3776	Surface measurement.
7	Jan.	20	Reckord,	602	4.62	1260	0.6 method.
8	Jan.	20	Reckord,	583	4.54	1195	Surface measurement.
9	Jan.	21	Reckord,	509	4.09	767	0.6 method.
10	Jan.	21	Reckord,	499	4.07	768	Surface measurement.
11	Feb.	2	Gough,	1259	8.12	6024	Surface measurement.
12	Feb.	2	Gough,	1180	7.72	5418	Surface measurement.
13	Feb.	2	Gough,	891	6.28	3257	surface measurement.
14	Feb.	4	Gough,	485	4.14	832	Surface measurement.
15	Feb.	5	Gough,	401	3.80	516	0.6 method.
16	Feb.	9	Gough,	376	3.56	380	Surface and 0.6 method.
17	Feb.	10	Gough,	361	3.49	347	Surface and 0.6 method.
18	Feb.	12	Gough,	347	3.39	302	Surface and 0.6 method.
19	Sept.	15	Hosmer & Shade,	339	3.23	87	0.6 method.

DISCHARGE TABLE FOR PERKIOMEN CREEK AT GRATERS FORD, MONTGOMERY COUNTY, PA., FROM JUNE 11, 1914.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
2.10	10	.50	350	.90	1580	.30	3380	.70	5460
.20	11	.60	410	5.00	1690	.40	3520	.80	5620
.30	13	.70	475	.10	1810	.50	3660	.90	5780
.40	16	.80	545	.20	1930	.60	3800	8.00	5940
.50	20	.90	620	.30	2050	.70	3950	.10	6100
.60	28	4.00	700	.40	2170	.80	4100	.20	6260
.70	38	.10	780	.50	2300	.90	4250	.30	6420
.80	52	.20	860	.60	2430	7.00	4400	.40	6580
.90	75	.30	950	.70	2560	.10	4550	.50	6740
3.00	110	.40	1050	.80	2690	.20	4700	.60	6900
.10	145	.50	1150	.90	2820	.30	4850	.70	7060
.20	185	.60	1250	6.00	2960	.40	5000	.80	7220
.30	235	.70	1360	.10	3100	.50	5150	.90	7380
.40	290	.80	1470	.20	3240	.60	5300	9.00	7550

DAILY MEAN GAGE HEIGHTS, IN FEET, OF PERKIOMEN CREEK AT GRATERS FORD, MONTGOMERY COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	JUNE.	JULY.	AUG.	SEPT.
1,	....	2.98	3.13	3.48
2,	....	3.22	3.11	3.28
3,	....	3.23	3.13	3.30
4,	....	3.12	3.21	3.24
5,	....	3.08	3.19	3.18
6,	....	3.12	3.15	3.30
7,	....	3.38	3.16	3.17
8,	....	3.50	3.11	3.11
9,	....	3.28	3.19	2.96
10,	....	3.16	3.05	2.89
11,	2.89	3.08	3.12	2.96
12,	2.90	3.08	3.39	2.94
13,	2.86	3.06	3.36	3.21
14,	2.98	3.06	3.27	2.96
15,	2.91	4.75	3.23	2.70
16,	2.90	3.70	3.31	2.48
17,	2.97	3.66	3.13	2.92
18,	2.90	3.38	3.13	2.68
19,	2.84	3.26	3.08	2.47
20,	2.96	3.17	3.07	2.82
21,	2.98	3.14	3.17	3.04
22,	2.98	3.02	3.03	2.76
23,	2.99	3.07	3.32	2.45
24,	3.18	3.02	3.35	2.16
25,	3.14	2.98	3.31	2.42
26,	3.02	3.08	3.22	2.64
27,	2.94	3.02	3.15	2.74
28,	3.00	3.43	3.23	2.68
29,	2.92	3.32	3.53	2.59
30,	2.97	3.14	3.60	2.63
31,	....	3.10	3.51	....

DAILY MEAN GAGE HEIGHTS, IN FEET, OF PERKIOMEN CREEK AT GRATERS FORD, MONTGOMERY COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	2.50	3.11	3.13	....	‡7.69	3.47	2.80	3.01	2.98	2.37	2.88	3.58
2,	2.42	2.98	3.17	....	7.48	3.41	2.88	2.93	2.95	2.31	3.06	3.50
3,	2.56	3.17	3.20	....	4.56	3.33	2.96	2.81	3.06	3.51	4.94	3.39
4,	2.80	3.09	3.14	....	4.10	3.15	3.07	2.99	2.94	2.99	§13.93	3.37
5,	3.00	3.03	2.81	....	3.82	3.17	3.42	3.77	2.76	2.74	4.78	3.42
6,	2.64	3.12	3.22	....	6.65	3.29	3.65	3.29	2.78	2.65	7.77	3.39
7,	2.56	2.98	3.84	10.42	5.09	3.37	3.82	3.09	2.72	2.58	4.50	3.42
8,	2.53	3.07	5.91	4.32	4.12	3.31	3.48	3.01	2.68	2.57	3.92	3.47
9,	2.58	3.19	4.80	3.70	3.70	3.21	3.17	2.98	2.62	3.58	5.67	3.44
10,	2.54	3.05	4.33	3.58	3.63	3.21	3.12	2.85	2.50	3.15	4.89	3.51
11,	2.73	3.03	4.20	3.66	3.72	3.43	3.76	2.79	2.44	2.83	3.54	3.31
12,	2.56	3.17	4.10	4.72	3.40	3.59	‖5.02	2.77	2.33	3.01	3.66	3.40
13,	2.58	2.97	3.99	†10.64	3.52	3.54	3.72	2.91	2.59	2.98	4.58	2.97
14,	2.60	2.97	5.62	4.40	3.41	3.71	3.44	3.03	2.80	¶5.71	3.60	2.98
15,	2.58	3.23	4.71	4.04	3.91	3.84	3.28	2.81	2.82	3.41	5.14	3.20
16,	2.93	4.09	*	3.80	6.09	3.69	3.20	2.79	2.82	3.05	4.30	3.14
17,	3.36	3.67	....	3.78	4.17	3.53	3.18	2.74	2.82	4.31	3.64	3.01
18,	3.47	3.49	....	3.92	3.74	3.39	3.04	2.91	2.70	3.39	3.40	3.96
19,	3.34	3.37	....	6.40	3.52	3.31	3.02	2.77	2.60	3.04	3.24	4.06
20,	3.21	3.27	....	4.56	3.51	3.38	3.00	2.68	2.66	3.23	3.09	3.60
21,	3.25	3.23	....	4.09	3.48	3.26	2.94	2.77	2.40	2.87	3.07	3.70
22,	3.01	3.35	....	3.76	3.46	3.23	2.78	‡‡3.78	2.54	2.83	3.16	3.90
23,	3.12	3.21	....	3.83	3.49	3.23	2.78	3.85	2.57	3.53	3.06	3.64
24,	3.06	3.25	....	5.53	5.93	3.17	2.91	3.34	2.74	3.00	3.02	3.48
25,	3.07	3.41	....	4.06	6.22	3.16	3.03	3.39	2.50	2.79	2.96	3.42
26,	2.97	2.97	....	4.00	4.42	3.04	2.78	3.19	2.54	2.69	3.01	3.56
27,	3.04	3.21	....	3.80	3.82	2.95	2.79	3.14	2.56	3.59	3.19	3.34
28,	3.11	3.05	....	3.68	3.58	2.95	3.05	2.99	2.48	3.31	3.26	3.31
29,	2.62	3.25	....	3.58	....	3.00	2.94	2.92	2.46	3.49	3.62	3.36
30,	3.00	3.09	....	3.54	....	2.94	3.04	2.91	2.34	3.21	3.80	3.12
31,	3.08	....	....	3.38	....	2.89	....	2.91	....	3.15	3.71	....

Notes.—*Creek frozen December 16, 1914, to January 6, 1915, inclusive. †Maximum 13.98 ft. at 7:06 a. m. ‡Maximum 13.48 ft. at 11 p. m. from hydrograph. ‖Maximum 5.56 ft. at 7 a. m. ‡‡Maximum 4.45 ft. at 9 p. m. from hydrograph. ¶Maximum 6.98 ft. at 9 a. m. §Maximum 16.04 ft. at 1 p. m.

DAILY DISCHARGE, IN SECOND-FEET, OF PERKIOMEN CREEK AT GRATERS FORD, MONTGOMERY COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	JUNE.	JULY.	AUG.	SEPT.
1,	....	103	157	338
2,	....	195	149	225
3,	....	200	157	235
4,	....	153	190	205
5,	....	138	181	177
6,	....	153	165	235
7,	....	279	169	173
8,	....	350	149	149
9,	....	225	181	96
10,	....	169	128	73
11,	73	138	153	96
12,	75	138	284	89
13,	66	131	268	190
14,	103	131	220	96
15,	78	1420	200	38
16,	75	475	240	19
17,	100	449	157	82
18,	75	279	157	36
19,	61	215	120	19
20,	96	173	134	57
21,	103	161	173	124
22,	103	117	120	46
23,	106	134	246	18
24,	177	117	262	11
25,	161	103	240	17
26,	117	138	195	82
27,	89	117	165	44
28,	110	308	200	86
29,	82	246	368	27
30,	100	161	410	31
31,	....	145	356	....

DAILY DISCHARGE, IN SECOND-FEET, OF PERKIOMEN CREEK AT GRATERS FORD, MONTGOMERY COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	20	149	157	183	‡5440	332	52	114	86	15	70	398
2,	17	103	173	183	5120	296	70	86	92	13	131	350
3,	25	173	185	183	1210	252	96	54	131	356	1620	284
4,	52	120	161	183	780	165	134	107	89	106	§16900	274
5,	110	120	54	183	560	173	302	524	46	44	1450	302
6,	32	153	195	183	3880	250	442	230	49	33	5570	284
7,	25	86	575	9950	1800	274	560	142	41	26	1150	302
8,	22	134	2830	970	796	240	338	114	36	26	636	332
9,	26	181	1470	475	475	190	173	103	30	398	2520	314
10,	23	128	980	398	430	190	153	64	20	165	1570	356
11,	42	120	860	449	489	308	517	51	18	59	374	240
12,	25	173	780	1380	290	404	‖1710	48	14	114	449	290
13,	26	99	692	†10400	362	374	489	78	27	103	1230	100
14,	28	99	2460	1050	296	482	314	120	52	¶2570	410	103
15,	26	200	1370	732	628	575	225	54	57	296	1860	185
16,	85	772	*330	545	3090	468	185	51	57	128	950	161
17,	268	456	330	531	836	368	177	44	57	960	436	114
18,	332	344	330	7410	503	284	124	78	38	284	290	668
19,	257	274	330	3520	362	240	117	48	28	124	206	748
20,	190	220	330	1210	356	279	110	36	34	200	142	410
21,	210	200	330	772	338	215	89	48	16	68	134	475
22,	114	262	330	517	326	200	49	‡‡531	23	59	169	620
23,	153	190	330	568	344	200	49	583	26	368	131	436
24,	131	210	330	2840	2860	173	78	257	44	110	117	338
25,	134	296	330	748	3270	169	120	284	20	51	96	302
26,	99	99	330	700	1070	124	49	181	23	37	114	386
27,	124	190	330	545	560	92	51	161	25	404	181	257
28,	149	128	330	462	398	92	128	106	19	240	245	240
29,	30	210	330	398	....	110	89	82	18	344	423	268
30,	110	142	330	374	....	89	124	78	14	190	545	158
31,	138	....	330	279	....	73	....	78	....	165	482	....

Notes.—*Creek frozen December 16, 1914, to January 6, 1915, inclusive, and discharge estimated from Brandywine Creek at Chadds Ford. †Maximum=17000 sec.-ft. ‡Maximum=15900 sec.-ft. ‖Maximum=2380 sec.ft. ‡‡Maximum=1100 sec.-ft. ¶Maximum=4370 sec.-ft. §Maximum=21700 sec.-ft. Discharges above 7550 sec.-ft. are estimated.

ESTIMATED MONTHLY DISCHARGE OF PERKIOMEN CREEK AT GRATERS FORD, MONTGOMERY COUNTY, PA.

(Drainage area 280 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
July,	1420	103	234	0.84	0.96
August,	410	120	203	0.72	0.84
September,	338	11	100	0.36	0.40
a1914.					
October,	332	17	98	0.35	0.40
November,	772	86	201	0.72	0.80
December,	2830	54	588	2.10	2.42
1915.					
January,	††17000	....	1540	5.50	6.34
February,	††15900	290	1320	4.71	4.90
March,	575	73	247	0.88	1.02
April,	2380	49	237	0.85	0.95
May,	1100	36	146	0.52	0.60
June,	131	14	41	0.15	0.17
July,	4370	13	260	0.93	1.07
August,	††21700	70	1310	4.68	5.40
September,	748	100	323	1.15	1.28
The year,	††21700	13	526	1.88	25.35

Note.—aCreek frozen December 16, 1914, to January 6, 1915, inclusive, and discharge estimated from Brandywine Creek at Chadds Ford. ††Estimated.

DELAWARE BASIN—STATION NO. 17.

SCHUYLKILL RIVER AT CONSHOHOCKEN, PA.

DESCRIPTION OF STATION.

LOCATION—At five span, steel, through-truss, highway bridge known as "Matson's Ford Bridge" between East and West Conshohocken, Montgomery County.

RECORDS AVAILABLE—Discharge complete from June 8, 1914, to September 30, 1915. For other records on this river see Schuylkill River at Schuylkill Haven and Reading; also Schuylkill River at Fairmount Dam, Philadelphia, in the 1910-11 and 1912 reports of the Water Supply Commission.

DRAINAGE AREA—1,795 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge and is read twice daily by O. R. Tomlinson.

CHANNEL—Both banks are high and not subject to overflow, and the bed is rocky with some vegetable growth.

REMARKS—The Schuylkill Navigation Company Canal follows the left bank a short distance from the river.

DISCHARGE MEASUREMENTS OF SCHUYLKILL RIVER AT CONSHOHOCKEN, MONTGOMERY COUNTY, PA.

(Drainage area 1,795 square miles).

No.	Date.		Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.			Sq. ft.	Feet.	Sec. ft.	
5	Jan.	13	Drake,	7791	18.85	52172	Surface msmt. 1588 sec. ft. in canal.
6	Jan.	14	Drake,	5335	13.39	26006	Surface msmt. No flow in canal.
7	Jan.	14	Drake,	4743	12.02	21823	Surface msmt.
8	Jan.	15	Taylor,	3271	8.46	11123	Surface msmt.
9	Jan.	15	Taylor,	3142	8.04	10348	Surface msmt.
10	Jan.	16	Taylor,	2733	7.08	7971	0.6 method.
11	Feb.	3	Gough,	4087	10.17	15459	Surface msmt.
12	Feb.	3	Gough,	3654	9.15	12988	Surface msmt.
13	Feb.	4	Gough,	3068	7.78	9604	Surface msmt.
14	Sept.	15	Hosmer & Shade,	1192	3.42	1411	0.6 method.

DISCHARGE TABLE FOR SCHUYLKILL RIVER AT CONSHOHOCKEN, MONTGOMERY COUNTY, PA., FROM JUNE 8, 1914.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.
1.20	140	.90	3100	.60	11630	.30	22525	16.00	37125
.30	150	5.00	3270	.70	11880	.40	22875	.10	37585
.40	160	.10	3450	.80	12130	.50	23225	.20	38050
.50	175	.20	3640	.90	12380	.60	23575	.30	38520
.60	195	.30	3835	9.00	12630	.70	23925	.40	39000
.70	220	.40	4035	.10	12880	.80	24275	.50	39490
.80	250	.50	4240	.20	13130	.90	24625	.60	39930
.90	285	.60	4450	.30	13380	13.00	24975	.70	40500
2.00	325	.70	4665	.40	13630	.10	25330	.80	41015
.10	365	.80	4885	.50	13880	.20	25685	.90	41535
.20	410	.90	5110	.60	14130	.30	26040	17.00	42060
.30	460	6.00	5335	.70	14380	.40	26400	.10	42590
.40	515	.10	5560	.80	14630	.50	26760	.20	43120
.50	575	.20	5790	.90	14880	.60	27125	.30	43655
.60	640	.30	6020	10.00	15130	.70	27490	.40	44190
.70	705	.40	6250	.10	15390	.80	27860	.50	44730
.80	775	.50	6485	.20	15660	.90	28230	.60	45275
.90	850	.60	6725	.30	15940	14.00	28610	.70	45825
3.00	930	.70	6965	.40	16230	.10	29000	.80	46385
.10	1010	.80	7210	.50	16525	.20	29400	.90	46955
.20	1095	.90	7455	.60	16825	.30	29805	18.00	47535
.30	1180	7.00	7700	.70	17130	.40	30215	.10	48125
.40	1270	.10	7945	.80	17440	.50	30630	.20	48725
.50	1365	.20	8190	.90	17755	.60	31050	.30	49335
.60	1465	.30	8435	11.00	18075	.70	31475	.40	49955
.70	1570	.40	8680	.10	18400	.80	31900	.50	50585
.80	1680	.50	8925	.20	18730	.90	32325	.60	51225
.90	1790	.60	9170	.30	19065	15.00	32750	.70	51875
4.00	1905	.70	9415	.40	19405	.10	33175	.80	52535
.10	2020	.80	9660	.50	19750	.20	33605	.90	53205
.20	2140	.90	9905	.60	20095	.30	34035	19.00	53885
.30	2260	8.00	10150	.70	20440	.40	34465		
.40	2385	.10	10395	.80	20785	.50	34900		
.50	2515	.20	10640	.90	21130	.60	35335		
.60	2650	.30	10885	12.00	21475	.70	35775		
.70	2790	.40	11130	.10	21825	.80	36220		
.80	2940	.50	11380	.20	22175	.90	36670		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF SCHUYLKILL RIVER AT CONSHOHOCKEN, MONTGOMERY COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	JUNE.	JULY.	AUG.	SEPT.
1,	....	3.00	3.20	3.27
2,	....	2.47	2.89	3.09
3,	....	2.88	3.00	3.15
4,	....	3.23	3.09	2.74
5,	....	2.94	3.13	2.78
6,	....	3.39	3.07	2.73
7,	....	3.08	2.95	2.57
8,	2.58	3.94	3.01	2.26
9,	3.24	3.60	3.65	1.93
10,	3.04	3.25	2.81	1.75
11,	2.99	2.83	2.87	2.45
12,	3.02	2.87	3.29	2.33
13,	3.41	3.21	3.51	1.84
14,	2.88	3.39	3.37	1.54
15,	2.97	6.48	3.23	1.32
16,	2.82	5.09	2.63	1.46
17,	3.12	4.74	2.85	2.54
18,	3.00	4.38	2.07	3.54
19,	2.92	3.50	1.85	2.47
20,	2.93	‖3.35	1.95	2.34
21,	2.78	3.20	2.89	2.10
22,	3.05	3.40	3.49	3.04
23,	2.83	3.35	3.83	3.28
24,	3.39	3.30	3.04	2.63
25,	3.14	3.14	2.78	2.49
26,	2.91	3.06	3.25	1.54
27,	3.34	2.94	3.05	1.72
28,	2.99	3.60	2.67	2.62
29,	3.10	3.98	2.47	2.67
30,	2.86	3.52	4.16	2.18
31,	....	3.38	3.57	....

Note.—‖Interpolated.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF SCHUYLKILL RIVER AT CONSHOHOCKEN, MONTGOMERY COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.67	2.98	3.14	4.40	5.49	5.82	3.37	3.91	3.80	††3.16	3.99	4.48
2,	2.45	2.90	2.95	3.40	*17.56	5.44	2.92	4.04	3.70	††3.11	3.20	4.16
3,	3.35	2.42	2.75	2.43	9.67	5.12	2.89	3.55	3.54	††4.41	7.74	3.84
4,	2.87	1.80	3.31	2.80	7.68	4.82	4.23	4.25	4.20	††4.01	‡‡15.83	3.74
5,	2.59	2.40	3.07	2.67	6.56	4.66	4.54	4.90	3.39	††3.61	9.17	3.70
6,	1.75	3.26	2.87	2.63	9.32	4.64	4.34	4.67	3.86	3.36	11.66	3.50
7,	1.27	2.42	3.81	12.54	9.30	4.82	4.58	4.00	3.61	3.53	8.52	3.46
8,	2.24	2.72	†7.55	9.72	7.74	4.64	4.38	3.48	3.63	3.01	7.00	3.27
9,	3.05	2.44	6.77	6.80	6.16	4.48	3.82	3.58	3.38	3.91	7.10	2.52
10,	1.95	1.68	5.64	5.67	5.61	4.34	3.18	3.74	3.60	3.93	6.55	3.36
11,	2.65	2.07	5.15	4.87	5.23	4.40	3.90	3.24	3.49	3.72	5.60	3.30
12,	2.73	3.04	4.65	5.66	5.12	4.70	6.08	3.42	3.20	3.54	6.23	3.58
13,	2.16	2.42	4.72	‡18.57	5.18	4.58	4.90	3.56	3.80	3.96	6.72	††3.30
14,	2.83	1.98	6.65	12.45	5.06	4.65	4.48	3.96	3.70	4.64	5.96	††3.65
15,	3.38	2.16	5.21	8.31	5.07	4.74	4.16	3.58	4.08	4.33	6.45	††3.60
16,	3.01	4.11	4.97	6.99	8.86	4.64	3.56	3.60	3.86	3.24	8.49	††3.50
17,	2.61	4.08	3.96	6.13	7.26	4.26	3.44	3.36	4.52	4.68	5.94	††3.45
18,	3.63	3.22	3.71	11.41	6.24	4.00	3.72	3.46	3.57	4.98	5.22	††4.20
19,	3.53	3.04	3.19	10.14	5.80	3.88	3.62	3.58	3.52	††4.41	4.80	††4.30
20,	3.40	3.16	3.66	8.48	5.38	3.96	3.90	3.58	3.96	††4.38	4.56	4.20
21,	2.93	2.46	4.93	7.40	5.20	4.25	3.89	2.89	3.49	††4.11	4.44	4.35
22,	2.87	2.81	5.35	6.51	5.02	3.81	3.36	5.71	3.42	††4.07	4.50	4.36
23,	2.63	3.52	4.75	5.96	4.83	3.68	3.75	6.12	3.51	††4.73	7.08	3.84
24,	2.35	3.04	3.57	7.84	5.29	3.96	3.58	5.07	3.20	††3.73	6.00	3.78
25,	2.63	2.36	3.01	6.15	10.30	3.73	3.65	4.90	3.56	††3.46	5.50	3.70
26,	2.79	2.42	3.59	6.06	8.90	3.84	3.52	4.78	3.60	3.28	5.04	3.78
27,	2.39	2.82	3.03	5.48	7.14	3.50	3.76	4.63	3.32	4.23	4.59	3.27
28,	1.99	2.90	2.95	5.22	6.32	3.66	3.92	4.36	††3.30	4.82	4.26	3.11
29,	2.73	3.44	3.36	5.20	....	3.75	3.80	3.50	††3.25	3.83	5.02	3.00
30,	3.63	3.12	5.04	4.56	....	3.69	3.81	4.35	††3.20	4.41	5.25	3.28
31,	3.13	....	5.19	4.34	....	3.46	....	3.78	....	4.65	5.04	....

Notes.—†Maximum 8.05 ft. at 10 P. M. from hydrograph. ‡Maximum 19.12 ft. at 10:25 A. M. *Maximum 20.38 ft. at 5 A. M. ‡‡Maximum 19.00 ft. at 5 P. M. from hydrograph. ††Estimated.

DAILY DISCHARGE, IN SECOND-FEET, OF SCHUYLKILL RIVER AT CONSHOHOCKEN, MONTGOMERY COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	JUNE.	JULY.	AUG.	SEPT.
1,	....	980	1140	1200
2,	....	607	892	1050
3,	....	885	980	1100
4,	....	1170	1050	783
5,	....	932	1090	811
6,	....	1310	1040	776
7,	....	1040	940	670
8,	677	1890	988	490
9,	1180	1520	1020	347
10,	1010	1190	832	285
11,	972	848	878	595
12,	996	878	1220	526
13,	1330	1150	1420	314
14,	885	1310	1290	232
15,	956	6490	1170	202
16,	840	3480	710	219
17,	1080	2900	862	651
18,	980	2410	403	1450
19,	916	1420	318	607
20,	924	1280	355	532
21,	811	1140	892	415
22,	1020	1320	1410	1010
23,	848	1280	1760	1210
24,	1310	1230	1010	710
25,	1090	1090	811	619
26,	908	1030	1190	233
27,	1270	932	1020	276
28,	972	1520	736	703
29,	1060	1930	607	736
30,	870	1440	2140	451
31,	....	1300	1480	....

Note.—June 8 to September 30, 1914, inclusive 50 sec.-ft. added to daily discharge for canal.

DAILY DISCHARGE, IN SECOND-FEET, OF SCHUYLKILL RIVER, AT CONSHOHOCKEN, MONTGOMERY COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	262	964	1040	2380	4220	4930	1240	1800	1730	1110	1940	2540
2,	595	900	890	1270	*45100	4120	866	1950	1620	1070	1140	2140
3,	1280	577	740	533	14300	3490	842	1420	1460	2450	9560	1770
4,	878	300	1190	775	9370	2970	2180	2200	2190	1970	‡‡36400	1660
5,	684	565	986	686	6630	2730	2570	3100	1310	1530	13100	1620
6,	283	1200	828	660	18400	2710	2310	2750	1800	1280	20400	1420
7,	197	577	1690	23400	18400	2970	2620	1900	1530	1440	11500	1380
8,	480	769	†9050	14400	9510	2710	2360	1350	1600	988	7750	1200
9,	1020	589	7140	7210	5700	2490	1700	1500	1300	1850	8000	638
10,	355	265	4540	4600	4470	2310	1080	1660	1520	1870	6660	1280
11,	722	403	3540	3050	3700	2380	1790	1180	1410	1640	4500	1280
12,	776	1010	2720	4580	3490	2790	5520	1340	1140	1460	3730	1500
13,	442	577	2820	‡51000	3600	2620	3100	1480	1730	1910	7060	1230
14,	848	367	6840	23000	3380	2720	2490	1910	1620	2760	5300	1570
15,	1300	442	3660	10900	3400	2850	2090	1500	2060	2350	6420	1520
16,	988	2080	3220	7680	12300	2710	1420	1510	1800	1180	11400	1420
17,	696	2060	1860	5740	8340	2210	1310	1280	2590	2810	5250	1870
18,	1550	1160	1580	19400	5880	1900	1590	1380	1480	3290	3730	2190
19,	1440	1010	1090	15500	4880	1770	1490	1500	1440	2450	2990	2810
20,	1320	1110	1530	11300	4000	1860	1790	1500	1910	2410	2650	2190
21,	924	551	3150	8680	3640	2200	1780	892	1410	2080	2490	2370
22,	878	782	3940	6510	3310	1690	1230	4740	1340	2040	2560	2380
23,	710	1380	2860	5240	2990	1550	1620	5660	1420	2880	7950	1770
24,	538	962	1440	9760	3820	1860	1440	3450	1150	1650	5380	1710
25,	710	493	938	5680	15900	1600	1520	3150	1480	1380	4290	1620
26,	818	527	1460	5470	12400	1720	1380	2960	1520	1210	3390	1710
27,	560	790	954	4200	8040	1360	1640	2810	1250	2230	2690	1200
28,	371	850	890	3680	6070	1530	1810	2380	1230	3020	2260	1070
29,	776	1310	1230	3640	....	1620	1680	1420	1190	1820	3360	980
30,	1550	1030	3340	2600	....	1560	1690	2870	1150	2450	3790	1210
31,	1090	....	3620	2310	....	1330	....	1710	....	2770	3390	....

Notes.—†Maximum=10800 sec.-ft. ‡Maximum=54800 sec.-ft. *Maximum=64000 sec.-ft. ‡‡Maximum=53900 sec.-ft. October 1 to November 20, 1914, and May 9 to September 30, 1915, inclusive, 50 sec.-ft. added to daily discharge for canal. Discharges above 53885 sec.-ft. are estimated.

ESTIMATED MONTHLY DISCHARGE OF SCHUYLKILL RIVER AT CONSHOHOCKEN, MONTGOMERY COUNTY, PA.

(Drainage area 1,795 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
July,	3480	607	1550	0.86	0.99
August,	2140	318	1020	0.57	0.66
September,	1450	202	640	0.36	0.40
1914.					
October,	1550	197	808	0.45	0.52
November,	2080	265	853	0.48	0.54
December,	10300	740	2610	1.45	1.67
1915.					
January,	††54800	533	8580	4.78	5.51
February,	††64000	2990	8400	4.68	4.87
March,	4930	1330	2360	1.31	1.51
April,	5520	842	1870	1.04	1.16
May,	5660	892	2120	1.18	1.36
June,	2190	1140	1550	0.86	0.96
July,	3290	988	1980	1.10	1.27
August,	53900	1140	6810	3.79	4.37
September,	2540	638	1610	0.90	1.00
The year,	††64000	197	3300	1.84	24.74

Note.—††Estimated.

DELAWARE BASIN—STATION NO. 18.

DARBY CREEK AT LANSDOWNE, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, iron, highway bridge on road from Lansdowne to Upper Darby Township, Delaware County.

RECORDS AVAILABLE—Discharge complete from July 31, 1911, to September 30, 1915.

DRAINAGE AREA—35 square miles.

GAGE—A 10 foot staff gage, whose elevation of zero is arbitrary, is located on a tree on the west bank of the creek about one-quarter mile above the highway bridge, near Pennock's greenhouses. There is also a high water staff gage, graduated above 5 feet, located on a tree a short distance from the low water gage referred to same datum as low water gage. The gages are read twice daily by Belfiore Di Cecco.

CHANNEL—The right bank is sloping and does not overflow, the left bank is high and steep and not subject to overflow, and the bed is composed of mud, gravel and stones.

REMARKS—Slackwater from dam of Garrett Paper Mill extends to a point 75 or 80 yards below the gage.

DISCHARGE MEASUREMENTS OF DARBY CREEK AT LANSDOWNE, DELAWARE COUNTY, PA.

(Drainage area 35 square miles).

No.	Date.		Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.			Sq. ft.	Feet.	Sec. ft.	
12	Jan.	13	Matthes,	181	2.48	274	0.6 method.
13	Jan.	19	Reckord,	164	2.03	163	Surface msmt.
14	Feb.	1	Wilson,	271	4.25	833	0.6 method.
15	Feb.	2	Wilson,	204	3.12	457	0.6 method.
16	Feb.	3	Wilson,	136	1.94	129	0.6 method.
17	Sept.	14	Hosmer & Shade,	27	0.88	20	Wading 125 ft. below gage.
18	Sept.	14	Hosmer & Shade,	84	1.06	29	From highway bridge.

DISCHARGE TABLE FOR DARBY CREEK AT LANSDOWNE, DELAWARE COUNTY, PA., FROM JULY 31, 1911.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
0.50	11	.40	51	.30	222	.20	484	.10	780
.60	12	.50	63	.40	248	.30	516	.20	814
.70	14	.60	75	.50	276	.40	548	.30	848
.80	16	.70	89	.60	304	.50	580	.40	882
.90	18	.80	105	.70	332	.60	612	.50	916
1.00	22	.90	125	.80	362	.70	644		
.10	27	2.00	145	.90	392	.80	678		
.20	33	.10	170	3.00	422	.90	712		
.30	41	.20	196	.10	452	4.00	746		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF DARBY CREEK AT LANSDOWNE, DELAWARE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1911.

DAY.	JULY.	AUG.	SEPT.
1,	....	0.79	2.03
2,	....	0.66	1.04
3,	....	0.70	1.04
4,	....	0.74	1.04
5,	....	0.82	1.10
6,	....	0.88	1.24
7,	....	0.88	1.22
8,	....	0.72	1.10
9,	....	0.72	0.98
10,	....	0.74	1.24
11,	....	0.66	1.85
12,	....	0.82	1.44
13,	....	0.72	1.30
14,	....	0.70	1.25
15,	....	0.76	1.42
16,	....	1.04	1.25
17,	....	0.76	1.40
18,	....	0.74	1.40
19,	....	0.74	1.05
20,	....	0.86	1.21
21,	....	0.66	1.42
22,	....	0.75	1.20
23,	....	0.64	1.22
24,	....	0.69	1.30
25,	....	1.01	1.18
26,	....	1.05	1.20
27,	....	2.96	1.18
28,	....	1.28	1.08
29,	....	1.14	1.56
30,	....	1.76	1.85
31,	0.98	†6.96	....

Note.—†Maximum 7.76 ft. at 1:30 P. M.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF DARBY CREEK AT LANSDOWNE, DELAWARE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1912.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.25	1.12	1.28	1.58	1.45	1.25	1.15	1.20	1.20	0.95	1.40	1.21
2,	1.22	1.08	1.15	1.10	1.48	0.96	1.40	1.35	1.23	1.06	1.40	1.11
3,	1.05	1.04	1.30	1.25	1.46	1.12	1.60	1.30	1.55	0.98	1.38	1.04
4,	1.04	1.09	1.35	1.36	1.54	1.05	1.30	1.31	1.23	1.08	1.41	1.16
5,	1.12	1.18	1.20	1.32	1.38	1.19	1.20	1.40	1.28	0.98	1.41	1.05
6,	1.10	1.20	1.42	1.40	1.45	1.26	1.16	1.30	1.66	0.92	1.40	0.92
7,	1.30	1.70	1.40	1.38	1.46	1.26	1.20	1.55	1.46	1.16	1.41	1.02
8,	1.22	1.23	1.38	1.25	1.38	1.30	1.30	2.00	1.21	1.01	1.38	1.20
9,	1.15	1.15	1.33	1.80	1.50	1.32	1.35	1.20	1.30	0.94	1.40	0.82
10,	1.02	1.16	1.38	1.28	1.60	1.40	1.30	1.08	1.12	0.91	1.40	0.82
11,	1.08	1.18	1.16	1.18	1.52	1.22	1.48	1.12	1.20	0.95	1.45	0.94
12,	0.98	1.31	1.25	1.42	1.70	2.08	1.32	1.40	1.16	0.92	1.36	0.85
13,	1.08	1.22	1.20	1.60	1.58	2.95	1.32	1.20	1.15	0.98	1.35	0.94
14,	1.10	1.15	1.12	1.65	1.50	1.22	1.30	1.16	1.15	‡‡2.15	1.44	1.00
15,	1.28	2.00	1.66	1.52	1.60	*4.95	1.35	1.20	1.14	1.58	1.30	1.11
16,	1.12	1.40	1.80	1.48	1.66	1.20	1.21	1.26	1.56	0.96	1.32	1.12
17,	1.15	1.18	1.60	1.60	1.68	1.20	1.35	1.91	1.25	0.93	1.30	1.05
18,	2.85	1.92	1.10	1.42	2.06	1.10	1.82	1.70	1.11	1.28	1.82	1.08
19,	2.60	1.30	0.92	3.95	1.82	1.21	1.65	1.80	1.18	0.98	1.28	0.81
20,	2.25	1.36	1.20	1.82	1.74	1.50	1.32	1.15	1.11	1.12	1.31	0.72
21,	1.90	1.35	1.15	1.60	4.15	2.01	1.50	1.11	1.18	1.48	1.30	1.00
22,	1.90	1.30	1.30	1.38	2.30	1.25	1.22	1.23	1.12	1.15	1.32	1.02
23,	2.25	1.32	1.70	1.40	1.64	1.12	1.35	1.30	1.30	0.98	1.20	1.10
24,	1.40	1.82	1.30	1.32	1.32	2.90	1.22	1.28	1.15	0.94	1.18	¶2.21
25,	1.11	1.42	1.20	1.82	1.50	1.18	1.31	1.33	1.15	1.06	1.30	1.62
26,	1.08	1.80	1.15	1.35	‡4.20	1.20	1.30	1.30	1.19	1.11	1.11	1.33
27,	1.05	1.58	†1.76	1.42	2.15	1.25	1.28	1.12	1.22	1.20	0.90	1.10
28,	1.06	1.75	1.10	1.51	1.12	1.22	1.50	1.30	1.03	1.25	0.86	0.97
29,	1.12	1.65	1.12	1.53	1.15	2.70	1.40	1.20	1.15	1.19	0.95	1.10
30,	1.05	1.30	1.20	1.45	....	1.30	1.32	2.12	1.25	1.23	1.01	1.06
31,	1.10	....	1.80	1.50	....	1.40	....	1.25	....	1.32	1.15	....

Notes.—†Maximum 2.12 ft. at 6 A. M. ‡Maximum 9.00 ft. at 1:00 A. M. *Maximum 7.40 ft. at 6 P. M. ‡‡Maximum 3.20 ft. at 6 P. M. ¶Maximum 2.80 ft. at 6 P. M.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF DARBY CREEK AT LANSDOWNE, DELAWARE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1913.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.98	1.10	1.19	1.21	1.41	1.25	1.30	1.40	1.60	1.00	0.85	0.55
2,	1.11	1.12	1.10	1.12	1.50	1.32	1.36	1.43	1.45	1.15	0.80	0.65
3,	1.14	1.20	1.06	‡‡2.02	1.46	1.22	1.38	1.50	1.48	1.35	1.10	0.65
4,	1.12	1.08	1.15	1.22	1.50	1.35	1.32	1.70	1.50	1.25	1.05	0.40
5,	1.12	1.08	1.20	1.21	1.41	1.40	2.05	1.55	1.43	1.25	0.85	0.48
6,	1.10	1.06	1.46	1.16	1.46	1.36	1.50	1.42	1.45	1.25	1.10	0.75
7,	0.96	‡3.11	1.20	1.21	1.42	1.39	1.40	1.40	1.50	1.10	0.70	1.00
8,	1.10	1.20	1.21	1.12	1.51	1.44	1.40	1.30	1.51	0.95	0.90	1.05
9,	0.91	1.10	1.18	1.15	1.55	1.45	1.38	1.40	1.48	1.05	1.15	0.65
10,	0.93	1.20	1.10	1.18	1.42	1.32	1.40	1.38	1.41	1.05	0.85	0.45
11,	1.04	1.08	1.08	1.21	1.35	1.81	1.40	1.50	1.40	0.90	0.90	0.65
12,	1.20	1.05	1.10	1.30	1.36	1.25	§2.90	1.40	1.50	0.75	0.80	0.65
13,	1.20	1.12	1.18	1.21	1.45	1.14	1.58	1.35	1.45	1.58	1.00	0.50
14,	1.11	1.06	1.16	1.25	1.48	1.75	1.49	1.26	1.44	0.90	1.50	0.55
15,	1.02	1.08	1.20	1.36	1.55	1.81	1.52	1.38	1.34	1.10	0.65	0.90
16,	0.92	1.00	1.10	1.42	1.60	1.50	3.05	1.50	1.35	0.80	0.95	0.80
17,	1.04	1.23	1.11	1.78	1.42	1.28	1.61	1.50	1.50	0.95	0.80	0.55
18,	1.11	1.04	1.38	1.31	1.48	1.30	1.51	1.60	1.45	0.75	0.90	0.55
19,	1.10	1.11	1.18	1.34	1.32	1.32	1.46	1.32	1.40	0.95	0.90	0.58
20,	1.22	1.20	1.20	1.30	1.86	¶2.76	1.50	1.42	1.15	0.60	0.70	0.95
21,	1.14	1.15	1.15	1.32	1.40	1.56	1.45	1.40	1.85	0.80	1.05	0.95
22,	0.78	1.12	1.15	1.26	1.42	1.38	1.41	1.78	1.80	0.65	1.20	1.05
23,	†2.61	1.11	1.15	1.35	1.52	1.40	1.32	1.85	1.40	0.95	0.95	0.90
24,	1.22	1.34	1.20	1.45	1.40	1.22	1.31	1.90	1.30	0.90	0.88	0.78
25,	1.14	1.08	1.12	1.32	1.28	1.31	1.38	1.60	1.40	0.95	1.10	0.50
26,	1.24	1.05	1.16	1.42	1.31	1.42	1.40	1.50	1.10	0.55	0.80	0.80
27,	1.25	1.12	1.75	1.42	1.51	2.40	1.62	1.48	1.25	0.55	0.80	0.90
28,	1.10	1.16	1.22	1.42	1.64	1.91	3.02	2.20	1.46	1.15	0.70	0.55
29,	1.12	1.20	1.21	1.34	....	1.42	2.00	1.60	1.50	1.22	1.05	0.55
30,	1.17	1.08	*3.16	1.38	....	1.40	1.42	1.58	1.05	0.95	1.22	0.85
31,	1.14	....	1.31	1.33	....	1.38	....	1.50	....	1.05	1.00	....

Notes.—†Maximum 3.02 ft. at 6 A. M. ‡Maximum 5.02 ft. at 6 P. M. *Maximum 4.82 ft. at 6 P. M. ‡‡Maximum 2.55 ft. at 6 A. M. ¶Maximum 3.01 ft. at 6 P. M. §Maximum 3.80 ft. at 6 A. M.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF DARBY CREEK AT LANSDOWNE, DELAWARE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	2.40	1.40	1.75	1.25	1.55	1.15	1.60	1.18	1.15	1.30	1.45	1.28
2,	1.02	1.95	1.80	1.35	1.30	1.25	1.30	1.25	1.45	2.05	1.55	1.13
3,	0.65	1.95	1.55	1.65	1.45	1.40	1.40	1.25	1.25	1.25	1.42	1.15
4,	0.50	1.60	1.75	2.50	1.25	1.25	1.50	1.25	1.50	1.18	1.20	1.25
5,	0.75	1.95	1.95	2.75	1.50	1.20	1.35	1.15	1.40	1.40	1.25	1.25
6,	0.60	2.05	1.75	1.75	1.50	1.25	1.40	1.32	1.15	1.30	1.10	1.18
7,	0.60	2.00	2.65	1.45	1.35	1.40	1.20	1.30	1.10	1.28	1.25	0.95
8,	0.50	1.90	2.50	1.20	1.30	1.20	1.65	1.30	0.95	1.45	1.18	1.15
9,	0.60	2.30	2.35	1.10	1.25	1.10	2.90	1.40	1.08	1.00	1.35	1.22
10,	0.60	1.15	2.25	0.95	1.35	1.25	1.90	1.15	1.00	1.02	1.10	1.05
11,	0.75	1.10	2.55	1.15	1.25	1.25	1.25	1.05	1.15	1.25	1.12	1.05
12,	†3.00	1.35	2.45	1.25	1.30	1.05	1.30	1.35	1.32	1.30	1.30	1.00
13,	2.45	1.15	2.65	1.55	1.50	1.35	1.25	2.80	1.25	1.45	1.10	1.08
14,	1.10	1.25	2.55	1.85	1.45	2.20	1.45	1.75	1.32	1.25	1.30	1.15
15,	0.75	1.15	2.75	1.90	1.25	3.20	1.75	1.55	1.25	2.00	1.05	1.15
16,	0.75	1.60	2.50	1.80	1.45	‡3.20	1.55	1.18	1.22	1.76	1.22	1.08
17,	1.10	1.05	1.05	1.75	1.30	3.10	1.35	1.25	1.35	1.77	1.18	1.22
18,	1.15	1.05	0.90	1.75	1.35	3.05	1.35	1.12	1.45	1.65	1.25	1.15
19,	1.00	1.25	0.85	1.75	1.35	1.95	1.20	1.10	1.35	1.25	1.25	1.05
20,	0.45	1.30	0.80	1.65	1.70	1.45	1.55	1.25	1.15	1.42	1.30	....
21,	0.60	1.25	1.05	1.75	1.55	1.15	1.55	1.45	1.40	1.35	1.45	....
22,	0.90	1.15	1.05	1.75	1.45	1.25	1.35	1.50	2.10	1.40	1.25	....
23,	0.50	1.35	1.35	1.45	1.35	1.30	1.45	1.25	1.55	1.15	1.25	....
24,	0.40	1.25	1.65	1.45	1.25	1.45	1.30	1.15	2.72	1.38	1.15	....
25,	0.55	1.05	1.75	2.60	1.45	1.40	2.10	0.98	1.75	1.60	1.35	....
26,	0.70	1.25	2.95	1.45	1.45	1.35	5.80	1.15	1.45	1.15	1.35	1.12
27,	1.15	1.15	2.45	1.15	1.55	1.85	3.00	1.35	2.25	1.42	1.05	1.42
28,	1.25	1.50	2.10	1.10	1.35	3.10	1.95	1.10	3.20	2.48	1.25	1.20
29,	1.05	1.70	1.75	1.20	....	3.20	1.55	1.00	2.35	1.40	1.28	0.92
30,	0.85	1.55	1.65	1.20	....	1.55	1.45	1.30	1.80	1.22	1.35	1.02
31,	1.30	....	1.50	2.50	....	1.30	....	1.28	....	1.40	1.22	....

Notes.—†Maximum 4.00 ft. at 6 A. M. ‡Maximum 4.40 ft. at 6 P. M.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF DARBY CREEK AT LANSDOWNE, DELAWARE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.02	1.46	1.50	1.48	*3.86	1.52	1.40	1.34	1.34	1.21	1.45	1.33
2,	0.96	1.10	1.49	1.51	3.29	1.58	1.34	1.54	1.58	1.20	1.50	1.27
3,	0.98	0.95	1.48	1.56	2.00	1.58	1.60	1.42	1.39	1.20	1.32	1.30
4,	1.40	1.28	1.50	1.36	1.82	1.55	1.76	1.48	1.40	1.35	¶4.49	1.32
5,	1.20	1.05	1.45	1.49	1.74	1.54	1.69	1.50	1.40	1.49	1.53	1.24
6,	0.94	1.17	1.48	1.08	2.47	1.70	1.62	1.25	1.56	1.32	2.20	1.30
7,	0.94	0.69	†2.35	2.58	1.96	1.78	1.56	1.30	1.26	1.30	1.74	1.30
8,	1.15	1.46	2.19	1.48	1.74	1.81	1.56	1.42	1.18	1.24	1.40	1.30
9,	0.82	1.02	1.67	1.32	1.66	1.64	1.46	1.60	1.13	1.20	1.32	1.26
10,	1.08	1.19	1.44	1.56	1.62	1.64	1.45	1.36	1.16	1.30	1.30	1.33
11,	1.12	0.90	1.42	1.42	1.55	1.71	1.56	1.32	1.17	1.50	1.32	1.32
12,	1.12	0.96	1.50	‡2.67	1.58	1.60	1.56	1.48	1.46	1.33	1.39	1.45
13,	0.93	1.28	1.54	3.21	1.56	1.67	1.46	1.42	1.54	1.26	1.28	1.31
14,	0.70	1.11	1.56	1.80	1.74	1.72	1.38	1.24	1.40	1.38	1.24	1.04
15,	0.89	1.66	1.86	1.68	1.65	1.72	1.44	1.38	1.46	1.25	1.30	1.24
16,	1.62	1.73	1.52	1.56	1.92	1.48	1.44	1.54	1.28	1.18	1.26	1.22
17,	1.14	1.57	1.54	1.68	1.60	1.50	1.38	1.26	1.34	1.36	1.19	1.15
18,	1.46	1.58	1.47	3.38	1.54	1.46	1.60	1.27	1.36	1.50	1.22	1.24
19,	1.37	1.48	1.44	2.06	1.52	1.46	1.44	1.23	1.26	1.31	1.26	1.46
20,	0.78	1.50	1.54	1.77	1.54	1.50	1.41	1.32	1.52	1.34	1.24	1.40
21,	1.24	1.50	2.89	1.70	1.70	1.68	1.40	1.36	1.24	1.23	1.30	1.40
22,	1.08	1.44	1.56	1.62	1.68	1.50	1.42	‡‡2.68	1.44	1.18	1.48	1.32
23,	1.10	1.49	1.48	1.68	1.49	1.52	1.36	1.90	1.33	1.28	1.43	1.24
24,	0.84	1.46	1.46	1.76	2.20	1.47	1.38	1.58	1.26	1.27	1.42	1.22
25,	1.42	1.45	1.48	1.68	2.08	1.50	1.58	1.56	1.25	1.51	1.36	1.26
26,	1.10	1.44	1.48	1.62	1.68	1.45	1.55	1.40	1.28	1.32	1.36	1.41
27,	1.08	1.52	1.48	1.54	1.60	1.42	1.45	1.34	1.44	1.26	1.42	1.32
28,	1.24	1.51	1.46	1.60	1.76	1.54	1.41	1.29	1.30	1.23	1.45	1.24
29,	0.99	1.46	1.52	1.44	....	1.43	1.40	1.46	1.03	1.18	1.39	1.26
30,	0.94	1.50	2.04	1.37	....	1.44	1.42	1.54	1.10	1.24	1.35	1.28
31,	0.85	....	1.46	1.68	....	1.42	....	1.56	....	1.26	1.30	....

Notes.—†Maximum 2.93 ft. at 4:45 P. M. ‡Maximum 7.50 ft. at midnight from hydrograph. *Maximum 6.90 ft. at 11 P. M. from hydrograph. ‡‡Maximum 4.00 ft. at 9 P. M. from hydrograph. ¶Maximum 6.38 ft. at 8 A. M.

DAILY DISCHARGE, IN SECOND-FEET, OF DARBY CREEK AT LANSDOWNE, DELAWARE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1911.

DAY.	JULY.	AUG.	SEPT.
1,	....	16	152
2,	....	13	24
3,	....	14	24
4,	....	15	24
5,	....	16	27
6,	....	18	36
7,	....	18	35
8,	....	14	27
9,	....	14	21
10,	....	15	36
11,	....	13	115
12,	....	16	56
13,	....	14	41
14,	....	14	37
15,	....	15	53
16,	....	24	37
17,	....	15	51
18,	....	15	51
19,	....	15	24
20,	....	17	34
21,	....	13	53
22,	....	15	33
23,	....	13	35
24,	....	14	41
25,	....	22	32
26,	....	24	33
27,	....	410	32
28,	....	39	26
29,	....	29	70
30,	....	99	46
31,	21	†2040	....

Notes.—†Maximum=2560 sec.-ft. Discharges above 916 sec.-ft. are estimated.

DAILY DISCHARGE, IN SECOND-FEET, OF DARBY CREEK AT LANSDOWNE, DELAWARE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1912.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	37	28	39	73	57	37	30	33	33	20	51	34
2,	35	26	30	27	61	20	51	46	35	25	51	28
3,	24	24	41	37	58	28	75	41	69	21	49	24
4,	24	26	46	47	68	24	41	43	35	26	52	31
5,	28	32	33	43	49	32	33	51	33	21	52	24
6,	27	33	53	51	57	38	31	41	83	19	51	19
7,	41	89	51	49	58	38	33	69	58	31	52	23
8,	35	35	49	37	49	41	41	145	34	22	49	33
9,	30	30	44	105	63	43	46	33	41	20	51	16
10,	23	31	49	39	75	51	41	26	28	18	51	16
11,	26	32	31	32	65	35	61	28	33	20	57	20
12,	21	42	37	53	89	165	43	51	31	19	47	17
13,	26	35	33	75	73	407	43	33	30	21	46	20
14,	27	30	28	82	63	35	41	31	30	‡‡183	56	22
15,	39	145	83	65	75	*1080	46	33	29	73	41	28
16,	28	51	105	61	83	33	34	38	70	20	43	28
17,	30	32	75	75	86	33	46	127	37	19	41	24
18,	235	129	27	53	160	27	109	89	28	39	43	26
19,	304	41	19	729	108	34	82	105	32	21	39	16
20,	209	47	33	109	95	63	43	30	28	28	42	14
21,	125	46	30	75	797	148	63	28	32	61	41	22
22,	125	41	41	49	222	37	35	35	28	30	43	23
23,	209	43	89	51	81	28	46	41	41	21	33	27
24,	51	109	41	43	43	392	35	39	30	20	32	¶199
25,	28	53	33	43	63	32	42	44	30	25	41	78
26,	26	105	30	46	‡814	33	41	41	32	29	28	44
27,	24	73	†99	53	183	37	39	28	35	33	18	27
28,	25	97	27	64	28	35	63	41	24	37	17	21
29,	28	82	28	67	30	332	51	33	30	32	20	27
30,	24	41	33	57	....	41	43	175	37	35	22	24
31,	27	....	105	63	....	51	....	37	....	43	30	....

Notes.—†Maximum=175 sec.-ft. ‡Maximum=3610 sec.-ft. *Maximum=2310 sec.-ft. ‡‡Maximum=484 sec.-ft. ¶Maximum=362 sec.-ft. Discharges above 916 sec.-ft are estimated.

DAILY DISCHARGE, IN SECOND-FEET, OF DARBY CREEK AT LANSDOWNE, DELAWARE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1913.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	21	27	32	34	52	37	41	51	75	22	17	12
2,	28	28	27	28	63	43	47	55	57	30	16	13
3,	20	33	25	‡‡150	58	35	49	63	61	46	27	13
4,	28	26	30	35	63	46	43	89	63	37	24	10
5,	28	26	33	34	52	51	158	69	55	37	17	11
6,	27	25	58	31	58	47	63	53	57	37	27	15
7,	20	‡455	33	34	53	50	51	51	63	27	14	22
8,	27	33	34	28	64	56	51	41	64	20	18	24
9,	18	27	32	30	69	57	49	51	61	24	30	13
10,	19	33	27	32	58	43	51	49	52	24	17	10
11,	24	26	26	34	46	107	51	63	51	18	18	13
12,	33	24	27	41	47	37	§392	51	63	15	16	13
13,	33	28	32	34	57	29	73	46	57	73	22	11
14,	28	25	31	37	61	97	62	33	56	18	63	12
15,	28	26	33	47	69	107	65	49	45	27	13	18
16,	19	22	27	53	75	63	437	63	46	16	20	16
17,	24	35	28	102	53	39	76	63	63	20	16	12
18,	28	24	49	42	61	41	64	75	57	15	18	12
19,	27	28	32	45	43	43	58	43	51	20	18	12
20,	35	33	33	41	47	¶350	63	53	30	12	14	20
21,	29	30	30	43	51	70	57	51	115	16	24	20
22,	16	28	30	38	53	49	52	102	105	13	33	24
23,	†307	28	30	46	65	51	43	115	51	20	20	18
24,	35	45	33	57	51	35	42	125	41	18	18	16
25,	29	26	28	43	39	42	49	75	51	20	27	11
26,	36	24	31	53	42	58	51	63	27	12	16	16
27,	37	28	97	53	64	248	78	61	37	12	16	18
28,	27	31	35	53	81	127	428	196	58	30	14	12
29,	28	33	34	45	....	53	145	75	63	35	24	12
30,	31	26	*471	49	....	51	53	73	24	20	35	17
31,	29	....	42	44	....	49	....	63	....	24	22	....

Notes.—†Maximum=428 sec.-ft. ‡Maximum=1110 sec.-ft. *Maximum=1030 sec.-ft. ‡‡Maximum=290 sec.-ft. ¶Maximum=425 sec.-ft. §Maximum=678 sec.-ft. Discharges above 916 sec.-ft. are estimated.

DAILY DISCHARGE, IN SECOND-FEET, OF DARBY CREEK AT LANSDOWNE, DELAWARE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	248	51	97	37	69	30	75	32	30	41	57	39
2,	23	135	106	46	41	37	41	37	57	158	69	29
3,	13	135	69	82	57	51	51	37	37	37	53	30
4,	11	75	97	276	37	37	63	37	63	32	33	37
5,	15	185	185	347	63	33	46	30	51	51	37	37
6,	12	158	97	97	63	37	51	43	30	41	27	32
7,	12	145	318	57	46	51	33	41	27	39	37	20
8,	11	125	276	33	41	33	82	41	20	57	33	30
9,	12	222	235	27	37	27	392	51	26	22	46	35
10,	12	30	209	20	46	37	125	30	22	23	27	24
11,	15	27	290	30	37	37	37	24	30	37	28	24
12,	†422	46	262	37	41	24	41	46	43	41	41	22
13,	262	30	318	69	63	46	37	362	37	57	27	28
14,	27	37	290	115	57	196	57	97	48	37	41	30
15,	15	30	347	125	37	484	97	46	37	145	24	30
16,	15	75	276	105	57	‡484	69	32	35	99	35	26
17,	27	24	24	97	41	452	46	37	46	100	32	35
18,	30	24	18	97	46	437	46	28	57	82	37	30
19,	22	37	17	97	46	135	33	27	46	37	37	24
20,	10	41	16	82	89	57	69	37	30	53	41	....
21,	12	37	24	97	69	30	69	57	51	46	57	....
22,	18	30	24	97	57	37	46	63	170	51	37	....
23,	11	46	46	57	46	41	57	37	69	30	37	....
24,	10	37	82	57	37	57	41	30	338	49	30	....
25,	12	24	97	304	57	51	170	21	97	75	46	....
26,	14	37	407	57	57	46	1430	30	57	30	46	28
27,	30	30	262	30	69	115	422	46	209	53	24	53
28,	37	63	170	27	46	452	135	27	484	270	37	33
29,	24	89	97	33	....	484	69	22	235	51	39	19
30,	17	69	82	33	....	69	57	41	105	35	46	23
31,	41	....	63	276	....	41	....	39	....	51	35	....

Notes.—†Maximum=746 sec.-ft. ‡Maximum=882 sec.-ft. Discharge above 916 sec.-ft is estimated.

DAILY DISCHARGE, IN SECOND-FEET, OF DARBY CREEK AT LANSDOWNE, DELAWARE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	23	58	63	61	*698	65	51	45	45	34	57	44
2,	20	27	62	64	518	73	45	63	73	33	63	39
3,	21	20	61	70	145	73	75	53	50	33	43	41
4,	51	39	63	47	109	69	99	61	51	46	¶913	43
5,	33	24	57	62	95	68	88	63	51	62	67	36
6,	20	31	61	26	268	89	78	87	70	43	196	41
7,	20	14	†235	298	137	102	70	41	38	41	95	41
8,	30	58	193	61	95	107	70	58	32	36	51	41
9,	16	23	85	43	83	81	58	75	29	33	48	38
10,	26	32	56	70	78	81	57	47	31	41	41	44
11,	28	18	53	53	69	91	70	43	31	63	43	43
12,	28	20	63	‡324	73	75	70	61	58	44	50	57
13,	19	39	68	487	70	85	58	53	68	38	39	42
14,	14	28	70	105	95	92	49	36	51	49	36	24
15,	18	83	47	79	82	92	56	44	58	37	41	38
16,	78	94	65	70	129	61	56	68	39	32	38	35
17,	29	71	68	86	75	63	49	38	45	47	32	30
18,	58	67	59	542	68	58	75	39	47	63	35	36
19,	48	61	56	160	65	58	56	85	38	42	38	58
20,	16	63	68	100	68	74	52	43	65	45	36	51
21,	36	63	245	89	89	86	51	47	36	35	41	51
22,	26	56	70	78	88	63	53	‡‡326	56	32	61	43
23,	27	62	61	86	62	65	47,	125	44	39	55	36
24,	17	58	58	99	196	59	49	73	38	39	53	35
25,	53	57	61	86	165	63	73	70	37	64	47	38
26,	27	56	61	78	86	57	69	51	39	43	47	52
27,	23	65	61	68	75	53	57	45	56	38	53	43
28,	36	64	58	75	99	68	52	40	41	35	57	36
29,	22	58	65	56	....	55	51	58	24	32	50	38
30,	20	63	155	48	....	56	53	68	27	36	46	39
31,	17	....	58	86	....	53	....	70	....	38	41	....

Notes.—†Maximum=401 sec.-ft. ‡Maximum=2380 sec.-ft. *Maximum=2010 sec.-ft. ‡‡Maximum=746 sec.-ft. ¶Maximum=1690 sec.-ft. Discharges above 916 sec.-ft. are estimated.

ESTIMATED MONTHLY DISCHARGE OF DARBY CREEK AT LANSDOWNE, DELAWARE COUNTY, PA.

(Drainage area 35 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1911.					
August,	††2560	13	98	2.80	3.23
September,	152	21	44	1.26	1.41
1911.					
October,	304	21	63	1.80	2.08
November,	145	24	54	1.54	1.72
December,	175	19	47	1.34	1.54
1912.					
January,	729	27	79	2.26	2.61
February,	††3610	28	129	3.69	3.98
March,	††2310	20	111	3.17	3.66
April,	109	30	48	1.37	1.53
May,	175	26	53	1.51	1.74
June,	83	24	37	1.06	1.18
July,	484	18	33	0.94	1.08
August,	57	17	42	1.20	1.38
September,	362	14	32	0.91	1.02
The year,	††3610	14	61	1.73	23.52
1912.					
October,	428	16	36	1.08	1.19
November,	††1110	22	43	1.23	1.37
December,	††1030	25	49	1.40	1.61
1913.					
January,	290	28	46	1.31	1.51
February,	81	39	57	1.63	1.70
March,	425	29	71	2.03	2.34
April,	678	41	98	2.80	3.12
May,	196	38	68	1.94	2.24
June,	115	24	57	1.63	1.82
July,	73	12	24	0.69	0.80
August,	63	13	22	0.63	0.73
September,	24	10	15	0.43	0.48
The year,	††1110	10	49	1.40	18.91
1913.					
October,	746	10	46	1.31	1.51
November,	222	24	68	1.94	2.16
December,	407	16	156	4.46	5.14
1914.					
January,	347	20	95	2.71	3.12
February,	89	37	52	1.49	1.55
March,	882	24	134	3.83	4.42
April,	††1430	33	133	3.80	4.24
May,	362	21	49	1.40	1.61
June,	484	20	86	2.46	2.74
July,	270	22	62	1.77	2.04
August,	69	24	39	1.11	1.28
1914.					
October,	78	14	29	0.83	0.96
November,	94	14	49	1.40	1.56
December,	401	47	81	2.31	2.66
1915.					
January,	††2380	43	118	3.37	3.88
February,	††2010	62	138	3.94	4.10
March,	107	53	72	2.06	2.38
April,	99	45	61	1.74	1.94
May,	746	35	64	1.83	2.11
June,	73	24	46	1.31	1.46
July,	64	32	42	1.20	1.38
August,	††1690	32	81	2.31	2.66
September,	58	24	41	1.17	1.30
The year,	††2380	14	68	1.96	26.39

Note.—††Estimated.

DELAWARE BASIN—STATION NO. 19.

BRANDYWINE CREEK AT CHADDS FORD, PA.

DESCRIPTION OF STATION.

LOCATION—At two span, iron girder bridge of Pennsylvania Railroad at Chadds Ford, Delaware County.

RECORDS AVAILABLE—Discharge complete from August 1, 1911, to September 30, 1915.

DRAINAGE AREA—285 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the upstream side of the bridge and is read twice daily by E. J. Reynolds.

CHANNEL—The natural right bank of the creek is low and flat but flood bank is high and steep, the left bank is high and steep, and the bed is composed of mud, stones and gravel.

DISCHARGE MEASUREMENTS OF BRANDYWINE CREEK AT CHADDS FORD, DELAWARE COUNTY, PA.

(Drainage area 285 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec. ft.	
15	Jan. 13	Taylor, ...	2714	9.02	7883	Surface measurement.
16	Jan. 14	Taylor, ...	501	3.28	952	Surface measurement.
17	Jan. 14	Taylor, ...	510	3.18	1023	0.2, 0.6 and 0.8 method.
18	Jan. 14	Taylor, ...	482	2.96	954	0.6 method.
19	Feb. 2	Wilson, ...	3412	9.77	10164	Surface measurement.
20	Feb. 3	Wilson, ...	657	4.19	1612	0.6 method.
21	Sept. 14	Hosmer & Shade, ...	300	1.42	264	0.6 method.

DISCHARGE TABLE FOR BRANDYWINE CREEK AT CHADDS FORD, DELAWARE COUNTY, PA., FROM AUGUST 1, 1911.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
0.60	70	.60	703	.60	1920	.60	3680	.60	6860
.70	84	.70	756	.70	1990	.70	3800	.70	7100
.80	100	.80	804	.80	2060	.80	3920	.80	7350
.90	118	.90	852	.90	2130	.90	4050	.90	7620
1.00	138	3.00	900	5.00	2200	7.00	4180	9.00	7910
.10	160	.10	950	.10	2280	.10	4320	.10	8220
.20	184	.20	1000	.20	2360	.20	4460	.20	8530
.30	210	.30	1060	.30	2440	.30	4600	.30	8850
.40	236	.40	1120	.40	2520	.40	4750	.40	9180
.50	264	.50	1180	.50	2600	.50	4900	.50	9510
.60	294	.60	1245	.60	2680	.60	5050	.60	9840
.70	328	.70	1310	.70	2760	.70	5210	.70	10170
.80	364	.80	1375	.80	2850	.80	5370	.80	10500
.90	402	.90	1440	.90	2940	.90	5540	.90	10830
2.00	442	4.00	1505	6.00	3040	8.00	5710	10.00	11160
.10	482	.10	1570	.10	3140	.10	5880		
.20	522	.20	1640	.20	3240	.20	6060		
.30	567	.30	1710	.30	3340	.30	6250		
.40	612	.40	1780	.40	3450	.40	6440		
.50	660	.50	1850	.50	3560	.50	6640		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF BRANDYWINE CREEK AT CHADD'S FORD, DELAWARE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1911.

DAY.	AUG.	SEPT.
1,	1.06	‡4.79
2,	1.06	2.57
3,	1.70	2.15
4,	1.56	1.89
5,	1.36	1.80
6,	1.40	1.75
7,	1.22	1.62
8,	1.55	1.59
9,	1.34	1.58
10,	1.69	1.57
11,	1.64	3.06
12,	1.45	2.87
13,	1.33	1.68
14,	1.40	1.55
15,	1.34	1.99
16,	1.16	2.19
17,	1.10	1.84
18,	1.16	1.61
19,	1.10	1.53
20,	1.01	1.51
21,	1.04	1.47
22,	1.03	1.49
23,	1.00	1.44
24,	1.07	1.45
25,	1.40	1.46
26,	1.49	1.43
27,	4.22	1.41
28,	2.04	1.39
29,	1.64	2.11
30,	2.10	2.08
31,	†7.65	....

Notes.—†Maximum 8.84 ft. at 4:45 p. m. ‡Maximum 5.01 ft. at 9:30 a. m.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF BRANDYWINE CREEK AT CHADDS FORD, DELAWARE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1912.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.62	1.69	1.98	2.34	1.90	1.86	2.46	2.24	1.60	1.47	1.80	1.02
2,	1.98	1.66	1.95	2.14	1.70	1.70	2.40	1.94	1.56	1.32	1.30	1.67
3,	1.68	1.61	1.90	2.10	1.73	1.62	¶3.08	1.80	1.87	1.28	1.16	1.22
4,	1.58	1.61	2.01	2.04	1.75	1.60	2.34	1.73	1.57	1.25	1.04	1.06
5,	1.60	1.61	1.95	1.92	2.36	1.56	2.31	1.68	1.52	1.22	1.03	1.06
6,	1.44	1.66	1.87	*	1.88	1.58	2.24	1.94	2.20	1.20	1.02	1.08
7,	1.45	2.25	1.81	....	1.72	1.96	2.40	1.96	§§2.96	1.19	1.04	1.06
8,	1.44	1.91	1.79	....	1.66	2.10	2.34	3.27	1.92	1.19	1.02	1.00
9,	1.38	1.77	1.81	....	1.56	1.78	2.24	2.24	1.64	1.18	1.17	1.04
10,	1.50	1.70	1.79	....	1.53	1.66	2.04	2.00	1.61	1.14	¶¶2.76	0.96
11,	1.60	1.73	1.79	....	1.52	1.62	2.03	1.81	1.52	1.18	3.11	0.98
12,	1.55	1.67	1.78	....	1.52	2.30	1.98	1.85	1.50	1.33	1.67	0.99
13,	1.43	2.27	1.77	....	1.51	‡‡7.78	2.00	1.92	1.49	1.21	1.41	0.97
14,	1.35	1.77	1.75	....	1.47	2.86	2.12	1.80	1.44	1.18	1.33	0.92
15,	1.55	2.81	2.43	....	1.44	6.12	2.00	1.78	1.42	1.82	1.24	0.91
16,	1.45	2.33	2.85	....	1.60	4.76	2.18	§2.91	1.58	1.42	1.22	1.08
17,	1.45	1.92	2.47	....	1.66	3.06	2.07	3.06	1.60	1.58	1.16	1.02
18,	†4.70	2.87	2.05	2.08	2.06	2.98	2.42	2.16	1.72	1.92	1.30	0.98
19,	4.21	2.84	1.93	‡4.97	2.20	2.63	2.47	2.03	1.52	1.65	1.22	1.02
20,	2.02	2.03	1.88	3.62	2.30	3.14	2.23	1.94	1.46	1.32	1.30	1.13
21,	2.04	1.91	1.86	2.26	4.68	2.96	1.97	1.85	1.42	2.08	1.18	1.02
22,	2.19	1.84	2.00	2.14	‖8.08	2.48	1.94	1.79	1.39	1.96	1.15	0.94
23,	3.70	1.73	3.27	2.05	2.44	2.40	2.03	1.76	1.34	1.48	1.64	1.09
24,	2.32	2.88	2.76	2.36	2.03	4.67	1.86	1.78	1.35	1.30	1.26	2.20
25.	1.86	2.20	2.28	1.93	1.91	4.12	1.80	1.70	1.32	1.34	1.10	×5.01
26,	1.88	2.09	2.24	1.85	2.73	2.64	1.82	1.68	1.36	1.26	1.09	1.98
27,	1.84	1.97	3.32	1.90	5.54	2.26	1.87	1.64	1.40	1.23	1.06	1.50
28,	1.80	2.27	2.53	1.88	2.64	2.10	1.96	1.61	1.34	1.18	1.02	1.38
29,	1.75	2.36	2.12	1.84	1.98	5.48	2.00	1.66	1.32	1.15	1.05	1.28
30,	1.76	1.97	2.00	1.77	....	3.14	2.62	2.02	1.57	1.14	1.04	1.20
31,	1.72	....	2.36	1.74	....	2.62	....	1.68	....	1.10	1.03	....

Notes.—*Creek frozen January 6 to 17, 1912, inclusive. †Maximum 5.99 ft. at 4:30 p. m. ‡Maximum 5.35 ft. at 4:30 p. m. ‖Maximum 9.92 ft. at 9:30 a. m. ‡‡Maximum 11.00 ft. at 6 a. m. ¶Maximum 3.42 ft. at 9:30 a. m. §Maximum 3.83 ft. at 4:30 p. m. §§Maximum 3.86 ft. at 9:30 a. m. ¶¶Maximum 4.09 ft. at 4:30 p. m. ×Maximum 5.70 ft. at 9:30 a. m.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF BRANDYWINE CREEK AT CHADDS FORD. DELAWARE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1913.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.16	1.46	1.26	2.80	1.99	2.20	2.30	2.98	2.10	1.45	1.24	1.23
2,	1.12	1.46	1.32	2.45	1.72	2.00	2.18	2.81	2.08	1.41	1.49	1.20
3,	1.14	1.36	1.53	4.17	2.06	1.82	2.18	2.70	2.00	1.39	1.17	1.09
4,	1.09	1.28	1.42	3.20	2.40	1.82	2.18	2.56	1.94	1.37	1.13	1.07
5,	1.08	1.28	1.44	2.32	2.06	1.80	3.12	2.49	1.92	1.35	1.11	1.03
6,	1.06	1.28	1.58	2.23	1.94	1.77	2.20	2.46	1.88	1.63	1.11	1.17
7,	1.09	‡2.34	1.50	2.30	1.96	1.54	2.09	2.42	1.85	1.43	3.07	1.11
8,	1.02	2.80	1.32	2.83	1.96	1.50	2.04	2.36	1.74	1.33	1.45	1.41
9,	1.03	2.00	1.34	2.57	1.86	1.62	2.00	2.29	1.75	1.36	1.29	1.17
10,	1.08	1.62	1.30	2.08	1.81	1.78	1.94	2.23	1.74	1.79	1.22	1.03
11,	1.08	1.46	1.32	2.26	1.84	2.50	2.12	2.18	1.73	1.39	1.75	1.03
12,	1.05	1.46	1.30	2.30	1.76	2.00	6.52	2.18	1.71	1.31	1.35	1.15
13,	1.01	1.30	1.28	2.18	1.96	1.86	3.88	2.17	1.70	1.65	1.29	1.11
14,	1.04	1.72	1.26	2.02	1.64	2.68	3.18	2.18	1.67	1.41	1.27	1.05
15,	0.92	1.54	1.20	1.90	1.68	3.43	2.90	2.12	1.64	1.35	1.23	0.89
16,	1.00	1.42	1.30	2.06	1.62	3.04	6.70	2.13	1.63	1.30	1.17	0.79
17,	0.96	1.38	1.30	3.52	1.78	2.25	3.94	2.16	1.60	1.28	1.11	0.79
18,	0.98	1.38	1.32	2.50	1.76	2.06	3.24	2.24	1.58	1.27	1.09	1.07
19,	1.00	1.34	1.66	2.36	1.73	2.01	3.00	2.22	1.54	1.24	1.25	1.69
20,	1.00	1.38	1.73	2.20	1.74	3.86	2.80	2.18	1.52	1.22	1.11	1.38
21,	1.01	1.34	1.42	2.20	1.86	3.34	2.68	2.19	2.66	1.22	1.07	1.27
22,	0.96	1.32	1.34	2.21	2.02	2.52	2.64	2.23	1.69	1.23	1.06	1.71
23,	†4.48	1.31	1.31	2.12	2.50	2.32	2.58	4.10	1.66	1.21	1.05	1.41
24,	3.66	1.56	1.34	2.46	1.94	2.26	2.52	3.48	1.74	1.19	1.05	1.35
25,	2.10	1.78	1.42	2.24	1.72	2.21	2.48	2.78	1.66	1.30	1.03	1.25
26,	1.64	1.46	1.46	2.10	1.64	2.23	2.46	2.42	1.63	1.18	1.02	1.19
27,	1.43	1.36	2.08	2.50	2.88	4.98	3.66	2.31	1.62	1.14	1.43	1.14
28,	1.34	1.34	1.79	2.44	3.30	3.66	7.40	3.96	1.72	1.12	1.31	1.11
29,	1.30	1.31	1.68	2.12	....	2.54	4.27	2.56	1.56	1.16	1.25	1.08
30,	1.26	1.30	§4.08	2.10	....	2.40	3.50	2.22	1.52	1.32	1.51	1.07
31,	1.22	....	4.28	2.09	....	2.39	....	2.18	....	1.28	1.19	....

Notes.—†Maximum 4.61 ft. at 4:30 p. m. ‡Maximum 3.39 ft. at 4 p. m. §Maximum 6.43 ft. at 4 p. m.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF BRANDYWINE CREEK AT CHADDS FORD, DELAWARE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.51	1.24	1.44	1.34	‡4.49	1.64	2.18	1.61	1.24	1.05	1.36	1.14
2,	1.70	1.22	1.42	1.34	2.42	1.64	2.39	1.59	1.21	1.50	1.24	1.12
3,	1.41	1.20	1.30	2.32	1.99	2.02	1.99	1.61	1.18	1.42	1.46	1.02
4,	1.34	1.28	1.24	3.62	1.92	2.36	1.85	1.61	1.19	1.23	1.40	1.02
5,	1.27	1.26	1.22	2.98	1.82	2.16	1.77	2.00	1.29	1.31	1.38	0.96
6,	1.17	1.22	1.22	2.85	1.73	1.91	1.75	2.19	1.21	1.29	1.32	0.95
7,	1.12	1.17	1.80	1.91	2.68	1.77	1.72	1.89	1.18	1.37	1.28	0.97
8,	1.15	1.18	1.78	1.78	2.03	1.75	1.78	1.75	1.18	1.35	1.28	1.00
9,	1.15	1.58	1.44	1.73	1.86	1.44	2.58	1.72	1.17	1.31	1.20	0.95
10,	1.13	1.86	1.34	1.70	1.70	1.59	1.91	1.63	1.18	1.17	1.18	0.92
11,	1.14	1.53	1.29	1.75	1.67	1.82	1.63	1.60	1.17	1.18	1.14	0.92
12,	2.50	1.30	1.26	1.72	1.65	1.74	1.63	1.55	1.14	1.17	1.30	0.90
13,	1.46	1.22	1.24	*	1.62	2.04	1.61	1.92	1.10	1.15	1.36	0.90
14,	1.36	1.21	1.22	....	1.64	2.52	1.61	1.67	1.08	1.62	1.22	0.92
15,	1.34	1.20	1.26	....	1.63	3.80	1.75	1.57	1.10	§4.79	1.18	0.92
16,	1.30	1.94	1.26	....	1.64	5.50	2.58	1.49	1.10	3.13	1.09	0.92
17,	1.19	2.24	1.26	....	1.66	5.98	1.97	1.45	1.09	2.34	1.08	0.91
18,	1.10	1.68	1.26	1.52	1.68	4.82	1.71	1.45	1.08	1.57	1.17	0.89
19,	1.08	1.45	1.24	1.43	1.95	2.94	1.62	1.45	1.08	1.35	1.15	0.88
20,	1.62	1.36	1.20	1.42	2.45	2.62	1.78	1.43	1.16	1.26	1.07	0.90
21,	1.71	1.34	1.22	1.50	1.82	2.22	1.89	1.39	1.14	1.17	1.02	0.88
22,	1.38	1.24	1.23	1.42	1.76	2.18	1.69	1.36	1.64	1.15	1.36	0.89
23,	1.28	1.21	1.50	1.40	1.66	2.20	1.62	1.35	1.44	1.11	1.14	0.87
24,	1.23	1.21	2.48	3.34	1.62	2.18	1.49	1.33	1.36	1.15	1.06	0.86
25,	2.74	1.24	2.59	†5.01	1.76	2.22	1.47	1.33	1.22	1.41	1.10	0.94
26,	2.44	1.22	4.98	1.76	1.62	2.36	4.41	1.31	1.16	1.20	1.16	0.90
27,	1.78	1.20	2.56	1.71	1.62	2.30	2.59	1.35	1.20	1.09	1.12	0.84
28,	1.28	1.44	1.64	1.66	1.64	2.22	2.07	1.31	1.30	7.05	1.06	0.87
29,	1.26	1.75	1.55	1.68	....	2.20	1.94	1.27	1.31	3.07	1.50	0.88
30,	1.29	1.60	1.48	1.68	....	2.20	1.89	1.28	1.06	1.79	1.74	0.96
31,	1.29	....	1.40	2.67	....	2.18	....	1.27	....	1.41	1.20	....

Notes.—*Creek frozen January 13 to 17, 1914, inclusive. †Maximum 6.20 ft. at 8 a. m. ‡Maximum 5.68 ft. at 8 a. m. §Maximum 7.18 ft. at 4 p. m.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF BRANDYWINE CREEK AT CHADDS FORD, DELAWARE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.88	0.84	0.90	1.32	2.78	2.06	1.59	1.70	1.58	1.38	2.01	1.62
2,	0.86	0.84	0.91	1.31	‡‡9.74	2.06	1.58	1.52	1.76	1.38	1.64	1.56
3,	0.83	0.82	0.90	1.14	4.11	2.04	1.58	1.48	2.60	2.42	1.68	1.52
4,	0.82	0.80	0.91	1.10	3.08	1.92	1.76	1.56	1.84	1.84	¶11.60	1.52
5,	0.82	0.80	0.90	1.19	2.76	1.92	1.84	2.12	1.64	1.80	3.81	1.50
6,	0.82	0.80	0.94	1.16	5.76	2.10	2.18	1.62	1.56	1.42	3.44	1.50
7,	0.82	0.79	2.75	*7.84	3.40	2.12	1.92	1.49	1.52	1.35	2.58	1.59
8,	0.80	0.78	2.86	2.18	2.70	2.12	1.76	1.48	1.50	1.32	2.06	1.54
9,	0.82	0.82	2.09	1.54	2.39	2.12	1.72	1.43	1.44	1.36	3.36	1.47
10,	0.82	0.88	1.72	1.38	2.20	2.13	1.65	1.36	1.38	1.28	2.69	1.46
11,	0.82	0.86	1.56	1.30	2.18	2.20	1.69	1.30	1.34	1.28	1.83	1.38
12,	0.82	0.86	1.54	3.77	2.22	2.15	2.26	1.32	1.33	1.42	1.72	1.52
13,	0.93	0.85	1.52	9.06	2.20	2.13	1.84	1.64	1.74	1.38	1.93	1.44
14,	0.88	0.84	2.70	3.14	2.21	2.14	1.66	1.53	2.26	1.70	2.15	1.42
15,	0.96	1.49	1.41	2.30	2.32	2.13	1.65	1.38	1.70	1.38	1.94	1.38
16,	1.37	†2.58	1.40	2.17	3.45	2.10	1.58	1.38	1.76	1.58	4.90	1.38
17,	1.26	1.44	1.40	2.16	2.44	2.00	1.53	1.36	1.78	1.50	2.58	1.38
18,	0.98	1.08	1.36	6.42	2.22	1.92	1.46	1.36	1.48	1.36	1.98	1.36
19,	1.11	1.00	1.28	3.98	2.08	1.90	1.50	1.32	1.42	1.38	1.86	1.46
20,	1.00	0.95	1.24	2.74	2.02	1.95	1.48	1.29	1.38	2.10	1.78	1.42
21,	0.98	0.90	‡3.40	2.35	1.99	1.84	1.46	1.44	1.38	1.50	1.76	1.68
22,	0.96	0.88	2.11	2.18	2.00	1.83	1.46	3.62	3.12	1.37	1.76	1.71
23,	0.93	0.88	1.46	2.18	2.00	1.82	1.48	3.64	2.62	2.66	1.70	1.50
24,	0.93	0.88	1.86	2.44	2.96	1.79	1.47	2.23	1.66	1.38	1.67	1.37
25,	0.94	0.92	1.30	2.30	2.07	1.76	1.46	1.93	1.54	1.34	1.85	1.36
26,	0.93	0.90	1.29	2.14	2.62	1.72	1.46	1.68	1.48	1.26	1.59	1.36
27,	0.92	0.90	1.30	1.96	2.36	1.64	1.49	1.71	1.48	1.38	1.52	1.32
28,	0.91	0.90	1.04	1.92	2.05	1.62	1.48	1.62	1.48	1.38	1.54	1.26
29,	0.88	0.90	1.47	1.76	....	1.62	1.48	1.55	1.42	1.31	2.28	1.25
30,	0.86	0.90	2.80	1.68	....	1.62	1.90	1.54	1.36	1.28	2.40	1.25
31,	0.84	....	2.00	1.63	....	1.61	....	1.66	....	2.83	1.98	....

Notes.—†Maximum 3.40 ft. at 3:30 a. m. ‡Maximum 5.38 ft. at 4 p. m. *Maximum 9.92 ft. at 8 a. m. ‡‡Maximum 10.87 ft. at 8 a. m. ¶Maximum 14.70 ft. at 2 p. m.

DAILY DISCHARGE, IN SECOND-FEET. OF BRANDYWINE CREEK AT CHADD'S FORD, DELAWARE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1911.

DAY.	AUG.	SEPT.
1,	151	‡2050
2,	151	694
3,	328	502
4,	282	398
5,	226	364
6,	236	346
7,	189	301
8,	279	291
9,	220	288
10,	325	285
11,	308	930
12,	250	598
13,	218	321
14,	236	279
15,	220	438
16,	174	518
17,	160	379
18,	174	297
19,	160	278
20,	140	267
21,	147	256
22,	145	261
23,	138	247
24,	153	250
25,	236	253
26,	261	244
27,	1650	239
28,	458	233
29,	308	486
30,	482	474
31,	†5130	....

Notes.—†Maximum=7460 sec.-ft. ‡Maximum=2210 sec.-ft.

DAILY DISCHARGE, IN SECOND-FEET, OF BRANDYWINE CREEK AT CHADDS FORD, DELAWARE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1912.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	301	325	434	585	402	387	641	540	294	256	364	142
2,	434	314	422	498	328	328	612	418	382	215	210	318
3,	321	297	402	482	339	301	¶940	364	391	205	174	189
4,	288	297	446	458	346	294	585	339	285	197	147	151
5,	294	297	422	410	594	382	572	321	270	189	145	151
6,	247	314	391	*485	394	288	540	418	522	184	142	156
7,	250	544	368	485	335	426	612	426	§§881	182	147	151
8,	247	406	360	485	314	482	585	1040	410	182	142	138
9,	231	353	368	485	382	357	540	540	308	179	177	147
10,	264	328	360	485	273	314	458	442	297	170	¶¶785	180
11,	294	339	360	485	270	301	454	368	270	179	955	134
12,	279	318	357	485	270	567	434	394	264	218	318	136
13,	244	554	353	485	287	‡‡5340	442	410	261	187	239	132
14,	223	353	346	485	256	833	490	364	247	179	218	122
15,	279	509	626	485	247	3160	442	357	242	372	194	120
16,	250	580	828	485	294	2030	514	§857	288	242	189	156
17,	250	410	646	485	314	930	470	930	294	288	174	142
18,	†1990	838	462	474	466	890	622	506	335	410	210	134
19,	1650	823	414	‡2180	522	722	646	454	270	311	189	142
20,	450	454	394	1260	567	970	536	418	258	215	210	167
21,	458	406	387	549	1980	881	430	383	242	474	179	142
22,	518	379	442	498	‖5850	650	418	360	233	426	172	126
23,	1310	339	1040	462	631	612	454	350	220	268	308	158
24,	576	818	785	594	454	1970	387	357	223	210	200	522
25,	387	522	558	410	406	1580	364	328	215	220	160	×2210
26,	394	478	540	383	770	727	372	321	226	200	158	434
27,	379	430	1070	402	2630	549	391	308	236	192	151	264
28,	364	554	674	394	727	482	426	297	220	179	142	231
29,	346	594	490	379	434	2580	442	314	215	172	149	205
30,	350	430	442	353	....	970	718	450	285	170	147	184
31,	335	....	594	342	....	718	....	321	....	160	145	....

Notes.—*Creek frozen January 6 to 17, 1912, inclusive, and discharge estimated from Darby Creek at Lansdowne. †Maximum=3030 sec.-ft. ‡Maximum=2480 sec.-ft. ‖Maximum=10900 sec.-ft. ‡‡Maximum=14500 sec.-ft. ¶Maximum=1130 sec.-ft. §Maximum=1390 sec.-ft. §§Maximum=1100 sec.-ft. ¶¶Maximum=1560 sec.-ft. ×Maximum=2760 sec.-ft. Discharge above 11160 sec.-ft. is estimated.

DAILY DISCHARGE, IN SECOND-FEET, OF BRANDYWINE CREEK AT CHADDS FORD, DELAWARE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1913.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1, ...	174	253	200	804	438	522	567	890	482	250	194	192
2, ...	165	253	215	636	335	442	514	800	474	239	261	184
3, ...	170	226	273	1620	446	372	514	756	442	233	177	158
4, ...	158	205	242	1000	612	372	514	683	418	228	167	153
5, ...	156	205	247	576	446	364	960	655	410	223	162	145
6, ...	151	205	288	536	418	353	522	641	394	304	162	177
7, ...	158	‡585	264	567	426	276	478	622	383	244	935	162
8, ...	142	804	215	818	426	264	458	594	342	218	250	239
9, ...	145	442	220	694	387	301	442	562	346	226	207	177
10, ...	156	301	210	474	368	357	418	536	342	360	189	145
11, ...	156	253	215	549	379	660	490	514	339	233	346	145
12, ...	149	253	210	567	350	442	3580	514	332	213	223	172
13, ...	140	210	205	514	426	387	1430	510	328	311	207	162
14, ...	147	335	200	450	308	746	990	514	318	239	202	149
15, ...	122	276	184	402	321	1140	852	490	308	228	192	116
16, ...	138	242	210	466	301	920	3800	494	304	210	177	98
17, ...	130	231	210	1190	357	544	1470	506	294	205	162	98
18, ...	134	231	215	660	350	466	1020	540	288	202	158	153
19, ...	138	220	314	594	339	446	900	581	276	194	197	325
20, ...	138	231	339	522	342	1410	804	514	270	189	162	231
21, ...	140	220	242	522	387	1080	746	518	737	189	153	202
22, ...	134	215	220	526	450	670	727	536	325	192	151	332
23, ...	†1840	213	213	490	660	576	698	1570	314	187	149	239
24, ...	1280	282	220	641	418	549	670	1170	342	182	149	223
25, ...	482	357	242	540	335	526	650	794	314	210	145	197
26, ...	308	253	253	482	308	536	641	622	304	179	142	182
27, ...	244	226	474	660	342	2190	1280	572	301	170	244	170
28, ...	220	220	360	631	1060	1280	4750	1480	335	165	213	162
29, ...	210	213	321	490	....	679	1690	689	282	174	197	156
30, ...	200	210	§1560	482	....	612	1180	531	270	215	267	153
31, ...	189	....	1700	478	....	608	....	514	....	205	182	....

Notes.—†Maximum=1930 sec.-ft. ‡Maximum=1110 sec.-ft. §Maximum=3480 sec.-ft.

DAILY DISCHARGE, IN SECOND-FEET, OF BRANDYWINE CREEK AT CHADDS FORD, DELAWARE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	267	194	247	220	‡1840	308	514	297	194	149	226	170
2,	328	189	242	220	622	308	608	291	187	264	194	165
3,	239	184	210	576	438	450	433	297	179	242	253	142
4,	220	205	194	1260	410	594	383	297	182	192	236	142
5,	202	200	189	890	372	506	353	442	207	213	231	134
6,	177	189	189	590	339	406	346	518	187	207	215	128
7,	165	177	364	406	746	353	335	398	179	228	205	132
8,	172	179	357	357	454	346	339	346	179	223	206	138
9,	172	288	247	339	387	247	693	335	177	213	134	128
10,	167	387	220	328	328	291	406	304	179	177	179	122
11,	170	273	207	346	318	372	304	294	177	179	170	122
12,	660	210	200	335	311	342	304	279	170	177	210	118
13,	253	189	194	*210	301	458	297	410	160	172	226	118
14,	226	187	189	210	308	670	297	318	156	301	189	122
15,	220	184	200	210	304	1380	346	285	160	§2050	179	122
16,	210	418	200	210	308	2600	674	261	160	965	158	122
17,	182	540	200	210	314	3020	430	250	158	585	156	120
18,	160	321	200	270	321	2070	333	250	156	285	177	116
19,	156	250	194	244	422	871	301	250	156	223	172	114
20,	301	226	184	242	636	718	357	244	174	200	153	118
21,	332	220	189	264	372	531	398	233	170	177	142	114
22,	231	194	206	242	350	514	325	226	308	172	226	116
23,	205	187	264	236	314	522	301	223	247	162	170	113
24,	192	187	650	1060	301	514	261	218	226	172	151	111
25,	775	194	703	†2210	350	531	256	218	189	239	160	126
26,	631	189	2190	350	301	594	1790	213	174	184	174	118
27,	357	184	689	332	301	567	703	223	184	158	165	107
28,	231	247	308	314	308	531	470	213	210	4250	151	113
29,	200	346	279	321	....	522	418	202	213	935	264	114
30,	207	294	258	321	....	522	398	205	151	360	342	130
31,	207	....	236	742	....	514	....	202	....	239	184	....

Notes.—*Creek frozen January 13 to 17, 1914, inclusive, and discharge estimated from climatological records. †Maximum=3240 sec.-ft. ‡Maximum=2740 sec.-ft. §Maximum=4430 sec.-ft.

DAILY DISCHARGE, IN SECOND-FEET, OF BRANDYWINE CREEK AT CHADDS FORD, DELAWARE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	114	107	118	215	794	466	291	328	288	231	446	301
2,	111	107	120	213	‡‡10300	466	288	270	350	231	308	282
3,	105	104	118	170	1580	458	288	258	708	622	321	270
4,	104	100	120	160	940	410	350	282	379	379	¶16100	270
5,	104	100	118	182	785	410	379	490	308	364	1380	264
6,	104	100	126	174	2810	482	514	301	282	242	1140	264
7,	104	98	780	*5440	1120	490	410	261	270	223	698	291
8,	100	97	833	514	756	490	350	258	264	215	466	276
9,	104	104	478	276	608	490	335	244	247	226	1100	256
10,	104	114	335	231	522	494	311	226	231	205	751	253
11,	104	111	282	210	514	522	325	210	220	205	375	231
12,	104	111	276	1360	531	502	549	215	231	242	335	270
13,	124	109	270	8100	522	494	379	308	342	231	414	247
14,	114	107	756	970	526	498	314	273	549	328	502	242
15,	130	261	239	567	576	494	311	231	328	231	418	231
16,	228	†698	236	510	1150	482	288	231	350	288	2130	231
17,	200	247	236	506	631	442	273	226	357	264	674	231
18,	134	156	226	3470	531	410	253	226	258	226	434	226
19,	162	138	205	1490	474	402	264	215	242	231	387	253
20,	138	128	194	775	450	422	258	207	231	482	357	242
21,	134	118	‡1120	590	438	379	253	247	231	264	350	321
22,	130	114	486	514	442	375	253	1260	960	226	350	332
23,	124	114	253	514	442	372	258	1270	718	737	328	264
24,	124	114	226	631	881	360	256	536	314	231	318	228
25,	126	122	210	567	470	350	253	414	276	220	383	226
26,	124	118	207	498	718	335	253	321	258	200	291	226
27,	122	118	210	426	594	308	261	332	258	231	270	215
28,	120	118	147	410	462	301	258	301	258	231	276	200
29,	114	118	256	350	....	301	258	279	242	213	549	197
30,	111	118	804	321	....	301	402	276	226	205	612	200
31,	107	....	442	304	....	297	....	314	....	818	434	....

Notes.—†Maximum=1120 sec.-ft. ‡Maximum=2500 sec.-ft. *Maximum=10900 sec.-ft. ‡‡Maximum=13800 sec.-ft. ¶Maximum=25600 sec.-ft. Discharges above 11160 sec.-ft. are estimated.

ESTIMATED MONTHLY DISCHARGE OF BRANDYWINE CREEK AT CHADDS FORD, DELAWARE COUNTY, PA.

(Drainage area 285 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1911.					
August,	7460	138	437	1.53	1.76
September,	2210	223	425	1.49	1.66
a1911.					
October,	3030	223	458	1.61	1.86
November,	838	297	463	1.62	1.81
December,	1070	346	509	1.79	2.06
1912.					
January,	2480	....	546	1.92	2.21
February,	10900	247	726	2.55	2.75
March,	††14500	288	1000	3.51	4.05
April,	1130	364	518	1.82	2.03
May,	1390	297	442	1.55	1.79
June,	1100	215	303	1.06	1.18
July,	474	160	233	0.82	0.94
August,	1560	142	234	0.82	0.94
September,	2760	120	251	0.88	0.98
The year,	††14500	120	474	1.66	22.60
1912.					
October,	1930	122	265	0.93	1.07
November,	1110	205	279	0.98	1.09
December,	3480	184	338	1.19	1.37
1913.					
January,	1620	402	632	2.22	2.56
February,	1060	301	437	1.53	1.59
March,	2190	264	648	2.27	2.62
April,	4750	418	1120	3.93	4.38
May,	1570	490	673	2.36	2.72
June,	737	270	354	1.24	1.38
July,	360	165	220	0.77	0.89
August,	935	142	217	0.76	0.88
September,	332	98	180	0.63	0.70
The year,	4750	98	447	1.57	21.25
b1913.					
October,	775	156	265	0.93	1.07
November,	540	177	241	0.85	0.95
December,	2190	184	335	1.18	1.36
1914.					
January,	3240	....	454	1.59	1.83
February,	2740	301	431	1.51	1.57
March,	3020	247	715	2.51	2.89
April,	1790	256	446	1.56	1.74
May,	518	202	282	0.99	1.14
June,	308	151	185	0.65	0.72
July,	4430	149	461	1.62	1.87
August,	342	142	195	0.68	0.78
September,	170	107	125	0.44	0.49
The year,	4430	107	345	1.21	16.41
1914.					
October,	228	100	123	0.43	0.50
November,	1120	97	142	0.50	0.56
December,	2500	118	336	1.18	1.36
1915.					
January,	10900	160	989	3.47	4.00
February,	††13800	438	1090	3.82	3.98
March,	522	297	419	1.47	1.70
April,	549	253	314	1.10	1.23
May,	1270	207	349	1.22	1.41
June,	960	220	339	1.19	1.33
July,	818	200	298	1.05	1.21
August,	††25600	270	1060	3.72	4.29
September,	332	197	251	0.88	0.98
The year,	††25600	97	476	1.67	22.55

Notes.—aCreek frozen January 6 to 17, 1912, inclusive, and discharge estimated from Darby Creek at Lansdowne.

bCreek frozen January 13 to 17, 1914, inclusive, and discharge estimated from climatological records.

††Estimated.

SUSQUEHANNA BASIN

SUSQUEHANNA BASIN—STATION NO. 1.

NORTH BRANCH SUSQUEHANNA RIVER AT BINGHAMTON, N. Y.

DESCRIPTION OF STATION.

LOCATION—At four span, steel, through-truss, highway bridge at Washington Street, Binghamton, N. Y.

RECORDS AVAILABLE—Discharge complete from July 31, 1901, to December 31, 1912, and gage heights from January 23 to September 30, 1915. For other records on this river see North Branch Susquehanna River at Towanda, North Branch Susquehanna River at Wilkes-Barre and North Branch Susquehanna River at Danville.

DRAINAGE AREA—2,400 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the upstream side of the bridge and is read twice daily by Fred T. Meade.

CHANNEL—Both banks are high and not subject to overflow, except in extreme stages, and the bed is composed of gravel and small stones.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF NORTH BRANCH SUSQUEHANNA RIVER, AT BINGHAMTON, BROOME COUNTY, N. Y., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	....	3.62	5.15	2.90	3.25	2.52	5.37	3.20	2.98
2,	....	5.35	5.00	2.95	3.25	2.50	5.80	3.40	2.88
3,	....	4.92	4.60	2.90	3.30	2.50	6.05	5.85	2.78
4,	....	4.32	4.05	2.85	3.15	2.45	5.50	‡8.45	2.70
5,	....	3.80	3.80	2.90	3.25	2.40	5.00	9.15	2.65
6,	....	3.95	3.70	2.90	3.20	2.35	4.40	7.28	2.60
7,	....	4.20	3.65	3.15	3.15	2.30	4.15	6.15	2.60
8,	....	4.20	3.50	3.65	3.10	2.28	†10.24	5.85	2.55
9,	....	4.00	3.40	4.05	3.08	2.20	14.53	5.45	2.50
10,	....	3.50	3.25	4.70	3.10	2.15	11.35	4.85	2.60
11,	....	3.30	3.20	6.05	3.00	2.15	8.90	4.55	2.70
12,	....	3.40	3.10	7.55	2.90	2.15	7.30	4.10	2.65
13,	....	3.55	3.00	6.60	2.80	2.20	7.30	3.75	2.60
14,	....	4.10	2.95	5.60	2.75	2.25	7.05	3.65	4.65
15,	....	7.30	2.95	4.75	2.75	2.20	6.10	3.60	4.80
16,	....	10.73	2.95	4.30	2.70	2.20	5.40	3.75	3.90
17,	....	9.15	2.90	4.20	2.70	2.15	4.85	3.50	3.35
18,	....	6.45	2.90	3.85	2.65	2.05	4.40	3.28	3.20
19,	....	5.05	2.80	3.50	2.70	2.15	4.10	3.10	3.20
20,	....	4.70	2.80	3.40	2.65	2.30	4.05	3.00	3.10
21,	....	4.35	2.85	3.30	2.60	2.20	3.72	3.15	3.00
22,	....	4.15	2.75	3.20	2.70	2.28	3.45	3.70	3.00
23,	4.70	4.35	2.85	3.10	2.80	2.38	3.40	4.45	3.10
24,	4.22	7.72	2.90	3.00	2.85	2.40	3.20	4.00	2.95
25,	4.42	13.83	3.00	2.95	2.75	2.38	3.20	3.65	2.80
26,	4.20	11.80	3.50	2.90	2.70	2.40	3.40	3.35	2.90
27,	3.90	7.80	3.80	2.85	2.75	2.35	3.40	3.15	3.00
28,	3.70	6.20	3.35	2.90	2.80	2.30	3.40	3.00	2.90
29,	3.35	....	3.30	2.95	2.70	2.25	3.30	2.90	2.80
30,	3.12	....	3.20	3.15	2.65	2.30	3.30	3.00	2.80
31,	3.30	....	3.05	....	2.60	....	3.20	3.00	....

Notes.—†Maximum 15.70 ft. at 11:30 p. m. from hydrograph. ‡Maximum 10.20 ft. at 10 p. m. from hydrograph.

SUSQUEHANNA BASIN—STATION NO. 2.

NORTH BRANCH SUSQUEHANNA RIVER AT TOWANDA, PA.

DESCRIPTION OF STATION.

LOCATION—At four span, steel, through-truss, highway bridge at Towanda, Bradford County.

RECORDS AVAILABLE—Discharge measurements and gage heights from January 29, 1914, to September 30, 1915. For other records on this river see North Branch Susquehanna River at Binghamton, N. Y., North Branch Susquehanna River at Wilkes-Barre and North Branch Susquehanna River at Danville.

DRAINAGE AREA—7,770 square miles.

GAGE—A standard chain gage, whose elevation of zero is 693.4 feet above mean sea level, is located on the downstream side of the bridge, and is read twice daily by Hiram E. Bull.

CHANNEL—Both banks are high and not subject to overflow, and the bed is composed of rock and gravel.

REMARKS—The U. S. Weather Bureau has observed gage heights at this station since October 1, 1892.

DISCHARGE MEASUREMENTS OF NORTH BRANCH SUSQUEHANNA RIVER AT TOWANDA, BRADFORD COUNTY, PA.

(Drainage area 7,770 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1914.		Sq. ft.	Feet.	Sec. ft.	
4	Oct. 1	Taylor & Brady,	4659	0.78	1426	
	1915.					
5	Feb. 18	Gough,	9909	7.58	35839	Surface method.
6	Feb. 20	Gough,	7996	5.15	22311	Surface method.
7	Feb. 26	Taylor,	16146	15.27	101002	Surface method.
8	Feb. 26	Taylor,	14682	13.52	81996	Surface method.
9	Feb. 27	Taylor,	11930	10.10	54667	Surface method.
10	Feb. 27	Taylor,	11040	8.98	45600	Surface method.
11	March 2	Taylor,	7820	4.95	19924	Surface method.
12	May 5	Wilson & Gough,	6766	3.45	10916	0.6 method.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF NORTH BRANCH SUSQUEHANNA RIVER AT TOWANDA, BRADFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.76	0.55	1.48	1.82	4.31	5.37	2.78	3.18	1.67	2.87	3.20	2.40
2,	0.70	0.55	1.32	2.08	5.36	4.87	2.65	3.28	1.58	5.75	4.17	2.24
3,	0.70	0.52	1.22	2.15	5.46	4.44	2.56	3.08	1.48	6.27	5.20	2.16
4,	0.68	0.58	1.55	2.08	4.91	3.92	2.46	2.92	1.36	6.50	8.35	2.08
5,	0.60	0.55	1.60	1.98	4.16	3.52	2.35	3.20	1.29	5.35	8.70	1.95
6,	0.58	0.55	1.42	1.92	3.94	3.50	2.52	3.30	1.18	4.65	‡‡9.88	1.85
7,	0.58	0.55	1.38	7.90	4.48	3.40	3.95	3.02	1.10	3.95	7.50	1.79
8,	0.58	0.55	1.40	†13.35	4.24	3.24	4.13	2.86	1.06	10.59	5.80	1.85
9,	0.55	0.55	1.38	8.80	3.88	3.12	4.35	3.08	0.99	§17.12	5.08	1.68
10,	0.58	0.58	1.40	6.25	3.44	2.92	5.05	2.95	0.94	12.32	4.92	1.64
11,	0.55	0.60	1.48	4.80	3.06	2.80	5.98	2.73	0.90	8.85	4.52	1.85
12,	0.60	0.60	1.42	4.25	2.91	2.74	6.80	2.49	0.90	7.40	3.95	1.78
13,	0.55	0.60	1.88	5.51	3.21	2.64	6.78	2.35	0.88	7.15	3.68	1.60
14,	0.60	0.60	1.40	5.72	4.11	2.60	5.25	2.16	0.82	7.22	3.52	1.78
15,	0.58	0.65	*1.40	4.78	7.96	2.60	4.40	2.12	0.85	5.80	3.30	4.02
16,	0.62	0.70	1.60	4.45	12.66	2.58	3.90	2.09	0.92	4.80	3.15	3.70
17,	0.68	0.92	1.49	4.00	10.64	2.60	3.62	1.99	0.90	4.92	3.15	2.98
18,	0.70	1.45	1.52	4.95	7.39	2.55	3.42	2.00	0.95	5.30	2.90	2.60
19,	0.70	1.88	1.55	9.97	5.79	2.48	3.18	2.06	0.95	4.10	2.72	2.88
20,	0.78	1.28	1.65	10.58	4.96	2.40	2.98	2.02	0.90	3.72	2.55	2.60
21,	0.82	1.20	1.65	8.60	4.72	2.40	2.85	1.92	0.90	3.38	2.55	2.50
22,	0.85	1.02	1.60	6.20	4.72	2.55	2.65	2.07	0.90	3.15	4.08	2.50
23,	0.90	1.00	1.65	5.00	5.74	2.48	2.56	2.49	0.99	2.90	5.10	2.62
24,	0.88	0.90	1.50	4.38	10.60	2.69	2.44	2.58	1.08	2.75	4.42	2.36
25,	0.72	0.80	1.50	4.22	‡16.90	3.15	2.42	2.36	1.21	2.65	3.80	2.15
26,	0.65	0.80	1.50	3.95	14.19	3.85	2.30	2.32	1.21	2.80	3.32	1.98
27,	0.60	0.72	1.50	3.75	9.41	3.90	2.18	2.32	1.24	3.12	2.98	1.85
28,	0.60	0.85	1.55	3.60	6.64	3.50	2.34	2.33	1.08	3.75	2.70	2.50
29,	0.58	1.30	1.58	3.22	....	3.25	3.62	2.24	0.94	3.15	2.54	2.30
30,	0.62	1.50	1.65	2.30	....	3.15	3.62	2.06	1.00	3.00	2.50	2.02
31,	0.58	....	1.65	4.10	....	2.90	....	1.88	....	3.02	2.50	....

Notes.—*River frozen December 15, 1914, to January 6, 1915. †Maximum 13.80 ft. at 8 a. m. ‡Maximum 17.44 ft. at 5:30 p. m. §Maximum 17.45 ft. at 8 p. m. ‡‡Maximum 10.20 ft. at 11 a. m.

SUSQUEHANNA BASIN—STATION NO. 3.

TOWANDA CREEK AT MONROETON, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge at Monroeton, Bradford County.

RECORDS AVAILABLE—Discharge complete from January 30, 1914, to September 30, 1915.

DRAINAGE AREA—218 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge and is read twice daily by Leon D. Pepper.

CHANNEL—The right bank is high and steep, the left bank is low but not subject to overflow, and the bed is composed of coarse gravel. The thread of the current passes under the bridge at an angle of about 18 degrees.

DISCHARGE MEASUREMENTS OF TOWANDA CREEK AT MONROETON, BRADFORD COUNTY, PA.

(Drainage area 218 square miles.)

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec. ft.	
8	Feb. 16	Gough, ...	526	4.46	2200	Surface method.
9	Feb. 17	Gough, ...	416	3.80	1103	Surface and 0.6 method.
10	May 5	Wilson & Gough, ...	293	3.01	359	Surface and 0.6 method.

DISCHARGE TABLE FOR TOWANDA CREEK AT MONROETON, BRADFORD COUNTY, PA., FROM JANUARY 30, 1914.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
2.00	9	.70	210	.40	750	.10	1575	.80	2660
.10	18	.80	270	.50	850	.20	1715	.90	2830
.20	30	.90	335	.60	960	.30	1860	5.00	3000
.30	50	3.00	405	.70	1075	.40	2010		
.40	78	.10	480	.80	1190	.50	2160		
.50	115	.20	565	.90	1310	.60	2320		
.60	160	.30	655	4.00	1440	.70	2490		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF TOWANDA CREEK AT MONROETON, BRADFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	....	4.36	....	3.74	2.93	2.27	2.17	2.17	2.26
2,	....	3.56	....	4.10	2.82	2.24	2.17	2.18	2.24
3,	....	3.34	....	3.66	2.67	2.24	2.13	2.21	2.22
4,	....	3.34	....	3.32	2.66	2.32	2.13	2.13	2.20
5,	....	3.24	....	3.18	3.04	2.57	2.15	2.11	2.16
6,	....	2.96	....	3.04	4.53	2.40	2.14	2.13	2.15
7,	....	2.96	....	3.06	3.54	2.30	2.23	2.18	2.14
8,	....	2.84	....	4.26	3.20	2.40	2.22	2.44	2.10
9,	....	2.80	....	4.28	4.10	2.40	2.13	2.39	2.12
10,	....	2.83	....	3.81	3.60	2.32	2.69	2.27	2.10
11,	....	2.67	....	3.36	3.35	2.28	2.69	2.33	2.14
12,	....	*	....	3.20	4.73	2.24	2.41	2.29	2.12
13,	....	....	....	3.06	§5.45	2.20	2.32	2.27	2.10
14,	....	....	....	2.95	3.97	2.19	2.67	2.23	2.10
15,	....	....	....	2.90	3.47	2.20	2.67	2.28	2.10
16,	....	....	....	4.11	3.19	2.20	2.50	2.24	2.06
17,	....	....	....	3.61	2.98	2.14	2.38	2.21	2.06
18,	....	....	3.75	3.41	2.96	2.14	2.30	2.19	2.05
19,	....	....	3.27	3.26	2.81	2.13	2.24	2.21	2.04
20,	....	....	3.12	4.94	2.72	2.20	2.22	2.48	2.04
21,	....	....	2.97	‡4.34	2.64	2.19	2.20	2.93	2.04
22,	....	....	2.92	3.75	2.57	2.16	2.14	2.71	2.03
23,	....	....	2.77	3.39	2.55	2.12	2.14	2.54	2.05
24,	....	....	2.79	3.17	2.47	2.14	2.14	2.42	2.08
25,	....	....	3.49	3.06	2.44	2.14	2.20	2.36	2.08
26,	....	....	4.85	4.36	2.49	2.10	2.24	2.33	2.08
27,	....	....	5.75	3.56	2.59	2.10	2.20	2.29	2.06
28,	....	....	†6.67	3.30	2.54	2.17	2.34	2.25	2.05
29,	....	....	4.69	3.16	2.43	2.20	2.31	2.28	2.06
30,	4.50	....	4.31	3.08	2.35	2.18	2.26	2.34	2.04
31,	5.52	....	3.93	....	2.29	....	2.20	2.32	....

Notes.—*Creek frozen February 12 to March 17, inclusive. †Maximum 7.07 ft. at noon. ‡Maximum 5.36 ft. at 5 p. m. §Maximum 6.15 ft. at 7 a. m.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF TOWANDA CREEK AT MONROETON, BRADFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	2.05	2.15	2.23	....	3.22	3.08	2.60	2.62	2.37	4.37	3.29	2.99
2,	2.08	2.17	2.23	....	3.68	3.00	2.58	2.69	2.37	3.65	3.82	2.92
3,	2.06	2.17	2.25	....	3.45	2.94	2.51	2.62	2.39	3.27	3.97	2.87
4,	2.06	2.16	2.24	....	3.11	2.80	2.54	2.62	2.33	3.61	4.37	2.83
5,	2.08	2.16	2.22	....	3.14	2.90	2.58	2.98	2.31	4.09	3.98	2.81
6,	2.06	2.17	2.22	....	3.42	2.73	2.60	2.88	2.23	3.28	§6.22	2.75
7,	2.10	2.17	2.28	7.80	3.25	2.70	2.94	2.90	2.25	3.18	4.27	3.01
8,	2.14	2.19	2.35	4.89	3.06	2.65	2.88	2.81	2.21	‡8.31	4.02	2.92
9,	2.12	2.24	2.34	3.91	2.99	2.66	3.09	2.78	2.19	5.71	3.78	2.85
10,	2.12	2.24	2.36	3.48	3.01	2.75	3.32	2.72	2.17	4.33	3.70	2.77
11,	2.14	2.20	2.36	3.27	2.82	2.66	3.39	2.61	2.18	3.98	3.46	2.72
12,	2.16	2.20	2.33	3.21	2.82	2.62	3.25	2.58	2.21	4.14	3.29	2.69
13,	2.14	2.20	*	3.95	2.91	2.67	3.00	2.56	2.20	3.76	3.34	2.87
14,	2.14	2.16	....	3.55	2.88	2.59	2.86	2.51	2.17	4.12	3.16	2.79
15,	2.15	2.20	....	3.42	5.98	2.74	2.78	2.45	2.21	3.66	3.06	2.71
16,	2.22	2.61	....	3.29	4.43	2.66	2.76	2.48	2.27	3.51	3.10	2.67
17,	2.29	2.42	....	3.33	3.74	2.63	2.68	2.54	2.25	3.43	3.04	2.62
18,	2.27	2.40	....	4.55	3.40	2.62	2.60	2.52	2.31	3.25	2.92	2.61
19,	2.25	2.46	....	6.13	3.22	2.60	2.58	2.46	2.21	3.19	2.82	3.31
20,	2.26	2.33	....	4.29	3.22	2.65	2.65	2.50	2.29	3.12	2.82	3.25
21,	2.20	2.29	....	3.71	3.14	2.60	2.56	2.48	2.26	3.05	2.80	3.21
22,	2.16	2.22	....	3.34	3.26	2.60	2.47	2.76	2.26	3.07	4.60	3.11
23,	2.15	2.22	....	3.19	3.59	2.60	2.50	2.70	2.31	3.15	3.70	2.98
24,	2.18	2.23	....	3.13	†5.76	2.76	2.46	2.61	2.36	3.05	3.38	2.91
25,	2.16	2.23	....	3.05	5.39	2.84	2.40	2.60	2.31	2.99	3.27	2.85
26,	2.16	2.29	....	2.97	4.00	2.84	2.46	2.58	2.36	3.47	3.14	2.80
27,	2.17	2.25	....	2.95	3.46	2.74	2.44	2.59	2.31	3.64	3.01	2.77
28,	2.14	2.25	....	2.78	3.22	2.70	2.48	2.51	2.21	3.27	2.93	2.78
29,	2.16	2.20	....	2.73	....	2.71	2.69	2.46	2.21	3.17	3.22	2.73
30,	2.12	2.22	....	2.77	....	2.52	2.78	2.53	2.26	3.12	3.20	2.69
31,	2.16	....	....	2.75	....	2.60	....	2.42	....	3.47	3.12	....

Notes.—*Creek frozen December 13, 1914, to January 6, 1915, inclusive. †Maximum 6.70 ft. at 8 p. m. from hydrograph. ‡Maximum 10.31 ft. at 3:30 p. m. §Maximum 7.02 ft. at 7 a. m.

DAILY DISCHARGE, IN SECOND-FEET, OF TOWANDA CREEK AT MONROETON, BRADFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	....	1950	140	1120	356	44	26	26	42
2,	....	914	140	1580	283	38	26	28	38
3,	....	693	140	1030	195	38	22	32	34
4,	....	693	140	674	190	56	22	22	30
5,	....	601	140	548	435	146	24	19	25
6,	....	377	140	435	2210	78	23	22	24
7,	....	377	140	430	894	50	36	22	23
8,	....	295	140	1800	565	78	34	93	18
9,	....	270	140	1830	1580	78	22	75	20
10,	....	290	140	1200	960	56	205	44	18
11,	....	195	140	712	702	46	205	58	23
12,	....	*168	140	565	2540	38	82	48	20
13,	....	168	140	450	§3820	30	56	44	18
14,	....	168	140	370	1400	29	195	36	18
15,	....	168	140	335	820	30	195	36	18
16,	....	168	140	1590	556	30	115	38	14
17,	....	168	140	972	391	23	72	32	14
18,	....	168	1130	760	377	23	50	29	14
19,	....	168	628	619	276	22	38	32	13
20,	....	168	497	2900	222	30	34	108	13
21,	....	168	384	‡1920	180	29	30	356	13
22,	....	168	349	1130	146	25	23	216	12
23,	....	168	252	740	138	20	23	133	14
24,	....	168	264	540	104	23	23	85	16
25,	....	168	340	450	93	23	30	67	16
26,	....	168	2740	1950	111	18	38	58	16
27,	....	168	4440	916	156	18	30	48	14
28,	....	168	†6680	655	133	26	61	40	14
29,	....	....	2470	531	89	30	53	46	14
30,	2160	....	1880	465	64	28	42	61	18
31,	3960	....	1350	....	48	....	30	56	....

Notes.—*Creek frozen February 12 to March 17, inclusive, and discharge estimated from Wyalusing Creek at Wyalusing. †Maximum=7960 sec.-ft. ‡Maximum=3650 sec.-ft. §Maximum=5340 sec.-ft. Discharges above 3000 sec.-ft. are estimated.

DAILY DISCHARGE, IN SECOND-FEET, OF TOWANDA CREEK AT MONROETON, BRADFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	14	24	36	90	583	465	160	170	70	1960	646	398
2,	16	26	86	90	1050	405	151	205	70	1020	1210	349
3,	14	26	40	90	800	363	120	170	75	628	1400	316
4,	14	25	38	90	488	270	133	170	58	972	1960	290
5,	16	25	34	90	514	335	151	391	53	1560	1410	276
6,	14	26	34	90	770	222	160	322	46	637	§5480	240
7,	18	26	46	10600	610	210	363	335	40	506	1820	412
8,	23	29	64	2810	450	185	322	276	32	‡12500	1470	349
9,	20	38	61	1320	398	190	472	258	29	4340	1170	302
10,	20	38	67	830	412	240	674	222	26	1900	1080	252
11,	23	30	67	628	283	190	740	165	28	1850	810	222
12,	25	30	58	574	283	170	610	151	32	1630	646	205
13,	23	30	*96	1380	342	195	405	142	30	1140	696	316
14,	28	25	96	905	322	156	309	120	28	1600	531	264
15,	24	30	96	770	4960	234	258	96	32	1090	450	216
16,	34	165	96	646	2060	190	246	108	44	861	480	195
17,	48	85	96	684	1120	175	200	133	40	770	435	170
18,	44	78	96	2240	750	170	160	124	58	610	349	165
19,	40	100	96	5280	583	160	151	100	32	556	283	1200
20,	42	58	96	1850	583	185	185	115	48	497	283	610
21,	30	48	96	1090	514	160	115	89	42	442	270	574
22,	25	34	96	693	619	160	104	246	42	458	2320	488
23,	24	34	96	556	949	160	115	210	58	522	1080	391
24,	28	36	96	506	†4460	246	100	165	67	442	731	342
25,	25	36	96	442	3700	296	78	160	58	398	628	302
26,	25	48	96	384	1440	296	100	151	67	820	514	270
27,	26	40	86	370	810	234	93	156	53	1010	412	252
28,	23	40	86	258	583	210	108	120	32	628	356	228
29,	25	30	96	228	....	216	205	100	32	540	583	228
30,	20	34	96	252	....	283	258	128	42	497	565	205
31,	25	....	96	240	....	160	....	85	....	820	497	....

Notes.—*Creek frozen December 13, 1914, to January 6, 1915, inclusive, and discharge estimated from Wyalusing Creek at Wyalusing. †Maximum=678 sec.-ft. ‡Maximum=19900 sec.-ft. §Maximum=7800 sec.-ft. Discharges above 8000 sec.-ft. are estimated.

ESTIMATED MONTHLY DISCHARGE OF TOWANDA CREEK AT MONROETON, BRADFORD COUNTY, PA.

(Drainage area 218 square miles.)

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
a1914.					
February,	1950	....	340	1.56	1.62
March,	††7960	....	848	3.89	4.48
April,	††3650	335	975	4.47	4.99
May,	††5340	48	646	2.96	3.41
June,	146	18	40	0.18	0.20
July,	205	22	60	0.28	0.32
August,	356	19	65	0.30	0.35
September,	42	13	19	0.09	0.10
b1914.					
October,	48	14	25	0.11	0.13
November,	165	24	48	0.20	0.22
December,	....	34	78	0.36	0.42
1915.					
January,	††10600	....	1160	5.32	6.13
February,	††6780	283	1090	5.00	5.21
March,	465	156	230	1.06	1.22
April,	740	78	242	1.11	1.24
May,	391	85	174	0.80	0.92
June,	75	26	45	0.21	0.23
July,	††19900	398	1380	6.33	7.30
August,	††7300	270	986	4.52	5.21
September,	1200	165	334	1.53	1.71
The year,	††19900	14	482	2.21	29.94

Note.—aCreek frozen February 12 to March 17, inclusive, and discharge estimated from Wyalusing Creek at Wyalusing.

bCreek frozen December 13, 1914, to January 6, 1915, inclusive, and discharge estimated from Wyalusing Creek at Wyalusing.

††Estimated.

SUSQUEHANNA BASIN—STATION No. 4.

WYALUSING CREEK AT WYALUSING, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge; first bridge after leaving Wyalusing, Bradford County.

RECORDS AVAILABLE—Discharge complete from December 1, 1908, to January 3, 1909, and June 1, 1909, to September 30, 1915.

DRAINAGE AREA—214 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge and is read once daily by Alton S. Taylor.

CHANNEL—The right bank is high and not subject to overflow, the left bank is low and water passes around the bridge at high stages, and the bed is composed of rock and gravel.

REMARKS—There are several mills on the stream above the bridge which affect the flow during dry weather. Water passes through an abandoned race on the left side of the creek at a gage height of 2.9 feet.

DISCHARGE MEASUREMENTS OF WYALUSING CREEK AT WYALUSING. BRADFORD COUNTY, PA.

(Drainage area 214 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.ft.	
34	Feb. 16	Taylor, ...	377	3.08	1311	Surface method.
35	Feb. 17	Taylor, ...	300	2.42	874	Surface method.
36	Feb. 18	Taylor, ...	205	1.62	415	Surface method.
37	Feb. 19	Taylor, ...	168	1.32	276	0.6 method.
38	May 6	Wilson & Gough, ...	219	1.70	418	0.6 method.

DISCHARGE TABLE FOR WYALUSING CREEK AT WYALUSING. BRADFORD COUNTY, PA., FROM JANUARY 1, 1913.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.ft.	Feet.	Sec.ft.	Feet.	Sec.ft.	Feet.	Sec.ft.	Feet.	Sec.ft.
—.20	2	.10	186	.40	854	.70	2024	.50	3880
—.10	4	.20	220	.50	932	.80	2122	6.00	4460
0.00	6	.30	256	.60	1016	.90	2220	.50	5060
.10	10	.40	296	.70	1100	4.00	2318	7.00	5700
.20	18	.50	340	.80	1186	.10	2415	.50	6360
.30	26	.60	384	.90	1276	.20	2515	8.00	7100
.40	38	.70	432	3.00	1366	.30	2615	.50	7900
.50	52	.80	482	.10	1456	.40	2715	9.00	8700
.60	68	.90	534	.20	1550	.50	2815	10.00	10300
.70	86	2.00	592	.30	1644	.60	2915	11.00	11900
.80	106	.10	652	.40	1738	.70	3015		
.90	130	.20	714	.50	1832	.80	3120		
1.00	156	.30	780	.60	1926	5.00	3335		

DAILY MEAN GAGE HEIGHTS. IN FEET, OF WYALUSING CREEK AT WYALUSING, BRADFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.23	0.34	0.42	....	1.60	1.40	0.79	1.43	0.64	2.17	1.14	1.26
2,	0.07	0.28	0.40	....	3.10	1.24	0.67	1.52	0.59	1.31	1.54	1.07
3,	0.20	0.33	0.40	....	1.91	1.22	0.71	1.31	0.58	1.94	1.22	0.84
4,	0.21	0.35	0.44	....	1.41	1.05	0.65	1.25	0.58	1.51	2.97	0.84
5,	0.17	0.33	0.40	....	1.32	0.89	0.68	1.59	0.61	1.22	2.90	0.82
6,	0.17	0.38	0.39	....	1.88	1.05	0.65	1.75	0.44	1.24	3.41	0.77
7,	0.23	0.33	0.41	6.55	1.76	0.98	0.77	1.49	0.45	1.16	2.81	0.83
8,	0.21	0.31	0.70	2.97	1.89	0.96	0.86	1.42	0.45	‡6.58	2.12	0.72
9,	0.23	0.33	0.89	2.62	1.31	0.83	0.84	1.36	0.41	6.46	1.82	0.60
10,	0.21	0.41	0.82	1.62	1.71	0.96	0.92	1.22	0.44	3.06	1.70	0.60
11,	0.04	0.43	0.76	3.42	2.33	0.97	1.63	1.04	0.36	2.16	1.40	0.52
12,	0.11	0.39	0.75	5.28	1.90	0.92	2.14	0.95	0.43	2.59	1.19	0.48
13,	0.02	0.44	0.62	8.12	1.65	0.87	1.57	0.93	0.36	1.98	1.29	0.46
14,	0.21	0.41	*	4.88	1.61	0.93	1.36	0.87	0.41	1.84	1.03	0.47
15,	0.20	0.41	....	2.69	†5.07	1.02	1.24	0.79	0.43	1.45	0.90	0.40
16,	0.27	0.36	....	2.14	3.26	1.03	1.13	0.74	0.44	1.22	2.56	0.41
17,	0.40	0.59	....	1.80	2.44	0.96	1.12	0.92	0.53	1.72	1.43	0.27
18,	0.54	0.50	....	2.52	1.68	0.84	1.00	0.94	0.58	1.61	1.19	0.38
19,	0.46	0.36	....	4.09	1.37	0.86	0.94	0.80	0.47	1.14	0.97	0.99
20,	0.49	0.40	....	3.16	1.37	0.83	0.93	0.72	0.45	1.53	0.86	0.90
21,	0.43	0.40	....	2.39	1.34	0.81	0.84	0.66	0.52	1.14	0.80	0.61
22,	0.44	0.40	....	1.69	1.43	0.78	0.76	1.24	0.46	1.12	2.22	0.72
23,	0.39	0.42	....	1.52	1.54	0.83	0.74	1.26	0.48	0.96	1.76	0.55
24,	0.38	0.41	....	1.45	3.50	0.91	0.91	1.04	0.60	0.85	1.29	0.47
25,	0.36	0.41	....	1.31	4.97	0.88	0.81	0.98	0.53	0.73	1.23	0.42
26,	0.33	0.35	....	1.25	2.94	0.95	0.78	0.90	0.45	0.69	1.02	0.41
27,	0.30	0.34	....	1.14	1.98	0.93	0.69	1.24	0.38	2.53	0.91	0.42
28,	0.34	0.39	....	1.15	1.62	0.92	1.04	0.95	0.35	1.31	0.80	0.43
29,	0.39	0.31	....	1.00	....	0.89	2.17	0.86	0.33	1.10	1.08	0.37
30,	0.34	0.36	....	1.34	....	0.76	1.73	0.75	0.24	0.93	1.60	0.33
31,	0.31	....	....	1.60	....	0.80	....	0.74	....	1.95	1.82	....

Notes.—*Creek frozen December 14, 1914, to January 6, 1915, inclusive. †Maximum 5.57 ft. at 5 p. m. ‡Maximum 9.84 ft. at 7.45 p. m.

DAILY DISCHARGE, IN SECOND-FEET, OF WYALUSING CREEK AT WYALUSING, BRADFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	20	31	41	88	384	296	104	309	75	695	200	242
2,	9	20	38	88	1460	234	81	349	66	260	358	177
3,	18	30	38	88	540	227	88	260	65	557	227	116
4,	19	32	44	88	300	171	77	238	65	344	1340	116
5,	16	30	38	88	264	128	82	380	70	227	1280	111
6,	16	36	37	88	288	171	77	457	44	234	1750	100
7,	20	30	39	5120	462	151	100	336	45	206	1200	113
8,	19	27	86	2290	292	146	120	305	45	‡5160	664	90
9,	20	30	128	1030	260	113	116	280	39	5010	492	68
10,	19	39	111	394	437	146	135	227	44	1420	432	68
11,	8	42	98	1760	802	148	398	168	33	689	296	55
12,	11	37	96	3640	534	135	677	143	42	1010	217	49
13,	7	44	72	7290	408	123	371	138	33	580	252	46
14,	19	39	*94	3210	389	138	280	123	39	503	165	48
15,	18	39	94	1090	†3410	162	234	104	42	318	130	38
16,	24	33	94	677	1610	165	196	94	44	227	982	39
17,	38	66	94	482	885	146	193	135	57	442	309	24
18,	58	52	94	949	422	116	156	140	65	344	217	36
19,	46	33	94	2400	284	120	140	106	48	200	148	153
20,	51	39	94	1510	284	113	138	90	45	353	120	130
21,	42	38	94	847	272	108	116	79	55	200	106	70
22,	44	38	94	427	309	102	98	234	46	193	727	90
23,	37	41	94	349	358	113	94	242	49	146	462	60
24,	36	39	94	318	1830	133	133	168	68	118	252	48
25,	33	39	94	260	3300	125	108	151	57	92	231	41
26,	30	32	94	238	1310	143	102	130	45	84	162	39
27,	26	31	94	200	580	138	84	234	36	957	138	41
28,	31	37	94	203	394	135	168	143	32	260	106	42
29,	37	27	94	156	....	128	696	120	30	186	180	34
30,	31	33	94	272	....	98	447	96	21	138	384	30
31,	27	....	94	384	....	106	....	94	....	563	492	....

Notes.—*Creek frozen December 14, 1914, to January 6, 1915, inclusive, and discharge estimated from Lackawanna River at Moosic. †Maximum=3960 sec.-ft. ‡Maximum 10000 sec.-ft.

ESTIMATED MONTHLY DISCHARGE OF WYALUSING CREEK AT WYALUSING, BRADFORD COUNTY, PA.

(Drainage area 214 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	58	7	27	0.13	0.14
November,	66	20	36	0.17	0.19
December,	128	....	83	0.39	0.45
1915.					
January,	7290	....	1160	5.42	6.25
February,	8960	272	788	3.68	3.83
March,	296	98	144	0.67	0.78
April,	695	77	194	0.91	1.01
May,	457	79	196	0.92	1.02
June,	75	21	48	0.22	0.24
July,	10000	84	701	3.28	3.78
August,	1750	106	452	2.11	2.48
September,	242	24	77	0.36	0.40
The year,	10000	7	326	1.52	20.52

Note.—Creek frozen December 14, 1914, to January 6, 1915, inclusive, and discharge estimated from Lackawanna River at Moosic.

SUSQUEHANNA BASIN—STATION No. 5.

MEHOOPANY CREEK NEAR MEHOOPANY, PA.

DESCRIPTION OF STATION.

LOCATION—At two span, steel, through-truss, highway bridge, the second above the mouth of the creek, near Mehoopany, Wyoming County.

RECORDS AVAILABLE—Discharge measurements and gage heights from January 29, 1914, to September 30, 1915.

DRAINAGE AREA—129 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge and is read twice daily by E. Veargason.

CHANNEL—The right bank is high and steep, the left bank is low and not subject to overflow, and the bed is composed of coarse gravel.

DISCHARGE MEASUREMENTS OF MEHOOPANY CREEK NEAR MEHOOPANY, WYOMING COUNTY, PA.

(Drainage area 129 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.ft.	
8	Jan. 15	Wilson & Gough, ...	263	2.89	672	0.6 method.
9	Feb. 16	Taylor, ...	317	3.34	1146	Surface method.
10	Feb. 17	Taylor, ...	238	2.66	666	Surface method.
11	Feb. 18	Taylor, ...	216	2.24	422	Surface method.
12	May 6	Wilson & Gough, ...	151	1.89	265	0.6 method.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF MEHOOPANY CREEK NEAR MEHOOPANY, WYOMING COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.62	0.68	0.81	2.01	2.62	2.00	1.11	1.96	1.22	1.64	1.42	1.45
2,	0.60	0.69	0.87	1.97	2.95	1.75	1.11	1.75	1.26	1.68	1.30	1.29
3,	0.56	0.66	0.95	2.01	2.52	1.78	1.10	1.42	1.33	2.41	1.44	1.19
4,	0.54	0.71	0.90	1.87	2.20	1.58	1.14	1.28	1.30	2.14	2.52	1.12
5,	0.54	0.67	0.85	1.71	2.22	1.54	1.26	2.12	1.25	1.88	2.60	1.14
6,	0.68	0.65	0.98	1.91	2,48	1.55	1.30	1.97	1.12	1.54	2.06	1.14
7,	0.70	0.80	0.98	†6.94	2.46	1.56	1.38	1.79	1.03	1.14	1.86	1.27
8,	0.70	0.81	1.35	4.34	2.28	1.44	1.29	1.91	0.98	2.24	1.72	1.21
9,	0.62	0.79	1.28	2.99	1.98	1.22	1.56	1.82	0.96	2.82	1.64	1.17
10,	0.59	0.72	1.21	2.47	1.62	1.29	1.62	1.63	0.94	2.18	1.62	1.11
11,	0.59	0.75	1.23	2.21	1.75	1.48	2.42	1.58	0.94	1.94	1.52	1.09
12,	0.52	0.76	1.15	2.84	1.78	1.42	2.58	1.48	0.93	2.31	1.52	1.66
13,	0.72	0.77	1.07	4.71	1.95	1.30	2.20	1.49	0.92	1.94	1.54	1.08
14,	0.72	0.77	1.37	8.14	1.93	1.25	1.98	1.39	0.93	2.14	1.42	1.05
15,	0.56	1.14	*1.79	2.87	3.62	1.30	1.82	1.32	1.02	1.81	1.34	0.99
16,	0.88	2.31	1.85	2.54	3.38	1.42	1.72	1.32	1.17	1.71	1.26	0.91
17,	1.19	1.84	1.71	2.45	2.63	1.28	1.64	1.39	1.18	1.60	1.32	0.81
18,	1.12	1.44	1.47	3.47	2.47	1.26	1.62	1.31	1.15	1.48	1.26	0.93
19,	0.98	1.18	1.67	5.64	2.22	1.22	1.58	1.24	1.04	1.24	1.16	1.27
20,	0.96	1.18	1.61	3.49	1.88	1.15	1.51	1.12	1.30	1.25	1.12	1.28
21,	0.96	1.08	1.53	2.71	1.85	1.21	1.64	1.26	1.18	1.20	1.08	1.24
22,	0.74	1.13	1.43	2.24	1.84	1.26	1.58	2.25	1.21	1.28	1.48	1.27
23,	0.71	1.07	1.23	2.14	2.02	1.18	1.42	1.92	1.31	1.22	1.58	1.19
24,	0.64	1.09	1.58	2.14	‡4.40	1.38	1.45	1.78	1.22	1.26	1.43	1.13
25,	0.72	1.05	1.49	2.17	4.55	1.42	1.45	1.82	1.06	1.12	1.56	1.07
26,	0.60	1.08	1.51	1.89	2.98	1.34	1.45	1.80	1.12	1.08	1.38	0.97
27,	0.57	1.01	1.47	1.87	2.58	1.28	1.44	1.76	1.13	1.58	1.12	0.98
28,	0.68	0.88	1.67	1.77	2.22	1.20	1.49	1.64	0.98	1.41	1.02	0.92
29,	0.70	0.78	1.68	1.61	....	1.28	2.08	1.46	0.86	1.30	1.22	0.89
30,	0.72	0.87	1.78	1.49	....	1.02	1.90	1.29	0.86	1.20	1.90	0.83
31,	0.72	....	1.97	1.61	....	1.08	....	1.35	....	1.74	1.74	....

Notes.—*Creek frozen December 15, 1914, to January 6, 1915, inclusive. †Maximum 7.9 ft. at 7 a. m. ‡Maximum 6.5 ft. at 7 p. m. from hydrograph.

SUSQUEHANNA BASIN—STATION NO. 6.

TUNKHANNOCK CREEK AT DIXON, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge at Dixon, Wyoming County.

RECORDS AVAILABLE—Discharge measurements and gage heights from January 28, 1914, to September 30, 1915.

DRAINAGE AREA—393 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the upstream side of the bridge and is read twice daily by N. L. Kneller.

CHANNEL—The right bank is high and steep and not subject to overflow, the left bank is low but does not overflow, and the bed is composed of coarse gravel. The thread of the current passes under the bridge at an angle of about 11 degrees.

DISCHARGE MEASUREMENTS OF TUNKHANNOCK CREEK AT DIXON, WYOMING COUNTY, PA.

(Drainage area 393 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.ft.	
7	Jan. 14	Wilson & Gough, ...	814	4.22	1935	0.6 method.
8	Feb. 16	Wilson, ...	903	4.61	2346	0.6 method.
9	Feb. 17	Wilson, ...	733	3.73	1570	0.6 method.
10	May 7	Wilson & Gough, ...	511	2.52	482	0.6 method.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF TUNKHANNOCK CREEK AT DIXON, WYOMING COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.25	1.29	1.41	1.68	4.55	2.72	1.79	2.61	1.88	2.14	2.06	2.40
2,	1.29	1.31	1.38	1.65	4.66	2.72	1.74	2.62	1.84	3.16	2.06	2.21
3,	1.29	1.29	1.40	1.58	3.28	2.48	1.78	2.47	1.78	2.88	2.11	2.09
4,	1.27	1.30	1.40	1.56	2.81	2.27	1.73	2.44	1.73	2.36	3.37	1.98
5,	1.27	1.28	1.40	1.54	2.61	2.22	1.68	2.90	1.68	2.16	3.71	1.97
6,	1.27	1.28	1.36	1.60	3.97	2.32	1.72	2.70	1.63	2.04	2.96	1.90
7,	1.25	1.28	1.45	5.68	3.42	2.42	1.95	2.48	1.56	1.89	2.71	1.96
8,	1.25	1.27	1.68	3.96	2.98	2.28	1.86	2.56	1.52	3.00	2.52	2.07
9,	1.25	1.28	1.92	3.01	2.64	2.10	1.92	2.49	1.47	‡‡5.50	2.40	1.95
10,	1.23	1.34	1.90	2.58	2.51	2.11	1.83	2.19	1.44	3.40	2.26	1.85
11,	1.25	1.31	1.83	2.43	2.31	2.12	3.95	2.12	1.46	2.79	2.11	1.84
12,	1.23	1.29	1.80	3.53	2.45	2.01	§4.75	2.09	1.44	2.93	2.07	1.74
13,	1.22	1.28	1.74	†7.02	2.72	1.95	3.50	2.11	1.47	2.72	2.08	1.67
14,	1.23	1.27	1.68	4.24	3.01	2.08	3.05	2.01	1.49	3.29	1.96	1.60
15,	1.23	1.32	1.70	3.74	‡6.22	2.06	2.78	2.02	1.47	2.69	1.90	1.59
16,	1.43	1.59	*1.63	3.37	4.71	2.05	2.66	1.90	1.76	2.48	2.14	1.60
17,	1.75	1.70	1.59	3.11	3.67	2.00	2.54	2.12	1.76	2.78	2.06	1.51
18,	1.61	1.61	1.54	4.24	3.04	1.89	2.41	2.15	1.70	2.54	1.91	1.47
19,	1.54	1.57	1.54	5.98	2.80	1.92	2.31	1.98	1.58	2.24	1.80	2.58
20,	1.50	1.54	1.57	4.50	2.67	1.96	2.15	1.75	1.54	2.70	1.74	2.41
21,	1.47	1.49	1.59	3.70	2.57	1.90	2.12	1.92	1.46	2.30	1.70	3.51
22,	1.37	1.47	1.54	2.97	2.55	1.87	2.02	2.15	1.48	2.26	2.68	3.02
23,	1.33	*1.44	1.52	2.92	2.57	1.86	2.17	2.95	1.66	2.24	2.87	2.44
24,	1.31	1.45	1.56	2.96	4.15	1.95	2.24	2.65	1.64	2.10	2.35	2.29
25,	1.29	1.40	1.60	2.78	5.92	1.91	2.14	2.58	1.51	1.96	3.02	2.12
26,	1.31	1.35	1.55	2.60	4.26	1.90	2.05	2.46	1.48	1.94	2.14	2.08
27,	1.29	1.38	1.56	2.52	3.38	1.82	2.04	2.58	1.42	3.10	1.98	2.26
28,	1.31	1.45	1.63	2.44	3.01	1.84	2.21	2.34	1.33	2.48	1.88	2.08
29,	1.27	1.43	1.67	2.16	....	1.78	2.56	2.15	1.32	2.24	2.31	1.96
30,	1.23	1.45	1.66	2.06	....	1.80	2.86	1.99	1.31	2.12	2.40	1.88
31,	1.24	....	1.68	2.20	....	1.75	....	1.97	....	2.23	2.91	....

Notes.—*Creek frozen November 23 to 26, 1914, inclusive; December 16, 1914 to January 6, 1915, inclusive. †Maximum 8.20 ft. at 6 a. m. from hydrograph. ‡Maximum 7.80 ft. at 5 p. m. §Maximum 5.40 ft. at 8 a. m. ‡‡Maximum 6.78 ft. at 8 a. m.

SUSQUEHANNA BASIN—STATION NO. 7.

BOWMAN CREEK AT EATONVILLE, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge at Eatonville, Wyoming County.

RECORDS AVAILABLE—Discharge measurements and gage heights from January 28, 1914, to September 30, 1915.

DRAINAGE AREA—118 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge and is read twice daily by Fred I. Wheelock.

CHANNEL—Both banks are high and not subject to overflow, and the bed is composed of coarse gravel.

DISCHARGE MEASUREMENTS OF BOWMAN CREEK AT EATONVILLE, WYOMING COUNTY, PA.

(Drainage area 118 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.ft.	
9	Jan. 14	Wilson & Gough, ...	296	3.90	865	0.6 method.
10	Jan. 15	Wilson & Gough, ...	261	3.56	615	0.6 method.
11	Feb. 16	Wilson, ...	319	4.30	1082	0.6 method.
12	Feb. 17	Wilson, ...	258	3.64	628	0.6 method.
13	Feb. 19	Wilson, ...	217	3.03	324	0.6 method.
14	May 7	Wilson & Gough, ...	192	2.64	176	0.6 method.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF BOWMAN CREEK AT EATONVILLE, WYOMING COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.60	1.65	1.79	2.31	3.35	3.15	2.23	2.73	2.39	2.32	2.09	2.46
2,	1.60	1.65	1.76	2.31	3.65	2.95	2.23	2.65	2.37	2.50	2.04	2.40
3,	1.60	1.65	1.81	2.23	3.25	2.82	2.21	2.58	2.30	3.22	2.01	2.33
4,	1.60	1.65	1.81	2.21	3.12	2.72	2.18	2.63	2.22	2.88	§3.35	2.53
5,	1.59	1.65	1.81	2.21	3.30	2.76	2.21	2.85	2.20	2.80	3.29	2.63
6,	1.60	1.65	1.76	2.53	3.65	2.70	2.25	2.78	2.17	2.60	2.89	2.43
7,	1.60	1.67	1.77	†6.66	3.32	2.60	2.34	2.68	2.14	2.50	2.71	2.28
8,	1.62	1.70	1.95	4.41	3.32	2.55	2.83	2.71	2.12	3.10	2.61	2.20
9,	1.60	1.72	2.06	3.66	2.94	2.48	2.32	2.63	2.10	3.28	2.51	2.18
10,	1.60	1.70	2.26	2.26	2.82	2.58	2.85	2.53	2.07	2.88	2.47	2.17
11,	1.60	1.70	2.16	2.21	2.75	2.45	3.18	2.51	2.04	2.75	2.37	2.13
12,	1.60	1.70	2.01	4.16	2.82	2.44	4.03	2.48	2.07	2.75	2.21	2.10
13,	1.61	1.70	2.31	5.23	2.82	2.38	3.43	2.47	2.02	2.60	2.37	2.08
14,	1.63	1.72	2.01	3.92	2.85	2.48	3.19	2.43	2.06	2.66	2.29	2.06
15,	1.84	2.45	2.16	3.57	5.58	2.54	2.95	2.33	2.04	2.52	2.26	1.98
16,	1.90	2.10	*2.11	3.33	4.29	2.44	2.83	2.38	2.03	2.40	2.25	1.98
17,	2.06	1.68	2.26	3.11	3.67	2.40	2.75	2.39	2.04	2.38	2.21	1.98
18,	1.78	1.90	2.51	4.56	3.32	2.37	2.71	2.37	2.02	2.32	2.13	1.98
19,	1.75	1.90	2.51	6.01	3.08	2.32	2.63	2.31	2.02	2.22	2.09	2.28
20,	1.78	1.90	2.11	4.31	3.10	2.39	2.55	2.22	2.10	2.20	2.06	2.43
21,	1.71	1.90	2.13	3.76	2.92	2.28	2.51	2.43	2.16	2.15	2.01	2.68
22,	‖1.70	1.90	2.19	3.21	2.90	2.29	2.45	2.65	2.17	2.18	2.41	2.50
23,	‖1.69	1.88	2.21	3.21	2.95	2.30	2.53	2.83	2.22	2.12	2.39	2.38
24,	1.68	1.90	2.21	3.13	‡5.53	2.30	2.43	2.75	2.16	2.10	2.29	2.38
25,	1.69	1.90	2.31	3.26	5.98	2.40	2.41	2.88	2.04	2.02	2.31	2.33
26,	1.70	1.88	2.31	2.93	4.40	2.32	2.33	2.81	2.17	2.08	2.27	2.28
27,	1.68	1.86	2.33	2.81	3.65	2.25	2.35	2.65	2.10	2.22	2.14	2.23
28,	1.64	1.81	2.36	2.69	3.20	2.25	2.35	2.58	2.02	2.12	2.14	2.18
29,	1.65	1.78	2.36	2.61	....	2.20	2.78	2.53	2.02	2.12	2.67	2.13
30,	1.67	1.78	2.43	2.53	....	2.30	2.83	2.45	2.04	2.13	2.77	2.12
31,	1.65	....	2.51	2.41	....	2.20	....	2.43	....	2.10	2.64	....

Notes.—*Creek frozen December 16, 1914, to January 6, 1915, inclusive. ‖Interpolated. †Maximum 7.50 ft. at 5 a. m. from hydrograph. ‡Maximum 7.30 ft. at 5 p. m. §Maximum 4.19 ft. at 11 a. m.

SUSQUEHANNA BASIN—STATION NO. 8.

LACKAWANNA RIVER AT MOOSIC, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge at River Street, or Moosic Road, Moosic, Lackawanna County.

RECORDS AVAILABLE—Discharge complete from August 8, 1913, to September 30, 1915. For other records on this river see Lackawanna River at Scranton in the 1910-11, 1912 and 1913 reports of the Water Supply Commission.

DRAINAGE AREA—265 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge and is read twice daily by Nelson Ross.

CHANNEL—Both banks are high, although the right bank may overflow during extreme stages, and the bed is composed of rocks and culm.

DISCHARGE MEASUREMENTS OF LACKAWANNA RIVER AT MOOSIC, LACKAWANNA COUNTY, PA.

(Drainage area 265 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1913.		Sq. ft.	Feet.	Sec.ft.	
1	Aug. 8	Reckord,	113	1.98	126	Surface method.
2	Sept. 25	Boehringer,	83	1.98	96	Surface method.
3	Dec. 9	Boehringer & Brown,	186	2.54	319	0.6 method.
	1914.					
4	March 29	Boehringer,	637	5.82	3712	Surface method.
5	March 29	Boehringer,	626	5.65	3525	Surface method.
6	March 29	Boehringer,	614	5.59	3468	Surface method.
7	March 30	Boehringer,	569	5.22	2858	Surface method.
8	March 30	Boehringer,	557	5.06	2641	0.6 method.
9	June 6	Hosmer & Wilson,	227	2.59	380	0.6 method.
10	July 11	Bowen,	512	4.31	1766	0.6 method.
11	Sept. 21	Taylor & Gough,	109	1.88	98	0.6 and surface method.
	1915.					
12	Jan. 15	Wilson & Gough,	303	3.16	872	0.6 method.
13	Feb. 3	Brady,	390	3.38	986	Surface method.
14	Feb. 18	Wilson,	361	3.36	875	0.6 method.
15	May 8	Wilson & Gough,	199	2.55	341	0.6 method.
16	Aug. 19	Reckord & Gough,	175	2.23	256	0.6 method.

Note.—Due to a correction for angle, measurements Nos. 1 to 11 have been revised and republished.

DISCHARGE TABLE FOR LACKAWANNA RIVER AT MOOSIC, LACKAWANNA COUNTY, PA., FROM AUGUST 8, 1913.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
1.70	68	.60	364	50	1028	.40	1880	.30	3000
.80	80	.70	422	.60	1112	.50	1988	.40	3140
.90	94	.80	484	.70	1202	.60	2100	.50	3290
2.00	116	.90	556	.80	1292	.70	2220	.60	3440
.10	142	3.00	628	.90	1386	.80	2340	.70	3600
.20	174	.10	704	4.00	1480	.90	2464	.80	3760
.30	212	.20	780	.10	1575	5.00	2594	.90	3930
.40	256	.30	862	.20	1672	.10	2726	6.00	4100
.50	308	.40	944	.30	1772	.20	2860		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF LACKAWANNA RIVER AT MOOSIC, LACKAWANNA COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1913.

DAY.	AUG.	SEPT.
1,	....	....
2,	....	....
3,	....	....
4,	....	....
5,	....	....
6,	....	....
7,	....	....
8,	1.98	....
9,	1.98	....
10,	1.99	1.98
11,	2.00	1.95
12,	1.99	1.96
13,	1.98	2.00
14,	2.00	1.95
15,	1.99	1.90
16,	1.99	1.90
17,	2.04	1.99
18,	2.00	2.00
19,	1.98	1.99
20,	1.98	1.99
21,	1.98	2.14
22,	1.99	2.50
23,	2.05	2.24
24,	2.00	2.12
25,	1.98	2.04
26,	2.10	1.98
27,	2.00	1.98
28,	1.99	1.95
29,	1.98	1.96
30,	2.00	1.97
31,	**	....

Note.—**August 30, observer resigned and new observer employed September 10.

DAILY MEAN GAGE HEIGHTS. IN FEET, OF LACKAWANNA RIVER AT MOOSIC, LACKAWANNA COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30 1914.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	2.02	2.17	2.32	2.32	3.93	2.68	4.23	3.15	2.31	2.02	2.32	2.02
2,	2.17	2.14	2.28	2.28	3.48	2.60	4.58	2.99	2.17	2.16	2.28	2.03
3,	2.22	2.10	2.28	2.28	3.28	2.46	4.38	2.87	2.15	2.12	2.43	2.15
4,	2.09	2.12	2.26	2.42	3.23	2.39	3.80	2.79	2.57	2.05	2.54	2.04
5,	2.04	2.12	2.19	2.48	3.23	2.32	3.60	3.19	2.85	2.06	2.36	2.06
6,	2.03	2.08	2.23	2.40	2.97	2.40	3.88	3.53	2.56	2.85	2.09	1.93
7,	1.99	2.08	2.43	2.33	3.06	2.41	3.28	3.38	2.42	2.50	2.07	1.87
8,	1.98	2.08	2.68	2.30	2.93	2.50	3.80	3.05	2.92	2.45	2.13	1.92
9,	1.98	2.68	2.58	2.30	2.70	2.46	4.70	3.15	2.65	2.26	2.03	1.89
10,	1.97	3.32	2.45	2.40	2.63	2.38	3.93	3.01	2.48	‡6.29	2.09	1.88
11,	2.00	2.83	2.44	2.33	2.58	2.27	3.63	2.99	2.39	4.62	2.09	1.88
12,	2.03	2.63	2.36	2.28	2.46	2.20	3.60	3.55	2.26	3.48	2.41	1.88
13,	2.04	2.56	2.40	2.27	2.42	2.20	3.37	4.52	2.30	3.02	2.25	1.88
14,	2.02	2.60	2.36	2.28	2.36	2.32	3.18	3.99	2.23	2.76	2.17	1.94
15,	1.92	2.60	2.37	2.22	2.31	2.80	3.13	3.55	2.18	2.73	2.13	1.96
16,	1.93	2.67	2.33	2.23	2.36	2.98	3.43	3.27	2.19	2.69	2.10	1.91
17,	1.91	2.66	2.37	2.29	2.38	3.60	3.46	3.15	2.12	2.55	2.16	1.88
18,	1.97	2.60	2.33	2.26	2.38	3.72	3.26	2.95	2.04	2.70	2.17	1.88
19,	1.94	2.60	2.30	2.22	2.40	3.11	3.06	2.84	2.08	2.65	2.15	1.83
20,	2.78	2.62	2.27	2.20	2.37	2.99	3.50	2.79	2.18	2.50	2.29	1.87
21,	2.77	2.56	2.29	2.32	2.30	2.92	4.18	2.63	2.11	2.30	2.43	1.88
22,	2.54	2.56	2.23	2.26	2.28	2.88	3.78	2.45	2.12	2.30	2.31	1.87
23,	2.37	2.52	2.24	2.23	2.24	2.80	3.46	2.39	2.08	2.44	2.17	1.84
24,	2.26	2.48	2.42	2.42	2.28	2.75	3.28	2.36	2.07	2.31	2.09	1.86
25,	2.34	2.38	2.44	2.62	2.23	2.95	3.08	2.31	2.12	3.35	2.09	1.95
26,	2.43	2.37	2.68	2.49	2.23	4.18	4.33	2.83	2.10	2.82	1.99	1.89
27,	2.38	2.32	2.44	2.48	2.23	5.95	4.13	2.57	2.11	2.64	1.99	1.85
28,	2.28	2.27	2.38	2.68	2.66	†7.85	3.66	2.67	2.30	2.66	2.00	1.86
29,	2.23	2.34	2.33	2.88	....	5.80	3.40	2.39	2.12	2.82	2.01	1.84
30,	2.18	2.43	2.37	3.68	....	5.12	3.46	2.35	2.09	2.64	2.15	1.86
31,	2.16	....	2.37	4.20	....	4.25	....	2.29	....	2.47	2.12	....

Notes.—†Maximum 8.00 ft. at 5 P. M. ‡Maximum 8.13 ft. at 8 P. M.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF LACKAWANNA RIVER AT MOOSIC, LACKAWANNA COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.82	1.78	1.87	1.92	3.62	2.92	2.04	2.44	2.29	2.04	1.98	2.88
2,	1.82	1.87	1.91	1.96	4.02	2.87	1.98	2.44	2.81	2.02	1.99	2.58
3,	1.82	1.80	1.87	1.96	3.37	2.79	2.07	2.41	2.27	2.06	2.05	2.45
4,	1.80	1.83	1.91	1.94	3.09	2.72	2.07	2.35	2.25	2.09	2.98	2.43
5,	1.80	1.82	1.87	1.94	2.85	2.57	2.06	2.53	2.10	2.14	3.29	2.35
6,	1.88	1.80	1.91	1.96	3.32	2.65	2.06	2.56	2.05	2.04	2.81	2.28
7,	1.82	1.78	2.07	3.94	3.17	2.69	2.17	2.52	2.03	1.94	2.59	2.33
8,	1.85	1.83	2.19	3.50	2.99	2.47	2.21	2.56	2.04	2.22	2.61	2.35
9,	1.88	1.86	2.15	3.14	2.79	2.41	2.21	2.51	2.05	2.68	2.78	2.29
10,	1.86	1.83	1.99	2.79	2.62	2.28	2.22	2.40	1.95	2.42	2.89	2.31
11,	1.90	1.83	2.01	2.58	2.59	2.25	3.68	2.30	1.95	2.26	2.55	2.17
12,	1.82	1.83	1.99	3.28	2.63	2.19	3.84	2.30	2.03	2.28	2.35	2.17
13,	1.86	1.83	1.87	4.28	2.73	2.16	3.34	2.42	2.04	2.28	2.38	2.15
14,	1.85	1.82	2.05	3.48	2.73	2.18	2.96	2.40	1.99	2.32	2.23	2.12
15,	1.86	1.87	1.97	3.17	4.62	2.16	2.78	2.24	2.11	2.24	2.26	2.11
16,	2.06	1.96	2.17	3.08	†4.85	2.19	2.66	2.25	2.27	2.22	2.44	**
17,	1.97	1.93	1.92	2.88	4.09	2.19	2.56	2.36	2.37	2.22	2.49	....
18,	1.94	1.90	1.98	3.73	3.34	2.16	2.51	2.29	2.38	2.18	2.28	....
19,	1.88	1.88	1.97	4.80	3.07	2.09	2.42	2.19	2.41	2.12	2.21	....
20,	1.90	1.92	1.98	4.16	2.89	2.11	2.40	2.16	2.25	2.27	2.15	2.67
21,	1.86	1.92	2.01	3.56	2.88	2.11	2.33	2.29	2.14	2.09	2.12	2.89
22,	1.83	1.84	1.94	3.13	2.84	2.09	2.28	3.64	2.14	2.08	3.55	2.88
23,	1.81	1.84	1.94	3.14	2.85	2.09	2.30	3.26	2.17	2.02	3.36	2.59
24,	1.84	1.80	1.91	3.18	3.72	2.09	2.36	3.17	2.11	1.97	3.01	2.48
25,	1.80	1.87	1.95	3.06	4.87	2.15	2.32	2.91	2.09	1.96	2.97	2.42
26,	1.86	1.86	1.93	2.90	3.85	2.18	2.26	2.88	2.04	1.89	2.55	2.42
27,	1.84	1.84	1.87	2.74	3.31	2.12	2.21	2.71	2.03	2.12	2.47	2.44
28,	1.83	1.89	1.89	2.70	3.09	2.09	2.28	2.60	2.00	2.10	2.48	2.34
29,	1.85	1.87	1.95	2.54	....	2.13	2.52	2.57	1.97	1.93	2.97	2.26
30,	1.83	1.92	2.05	2.43	....	2.07	2.56	2.46	1.95	1.99	3.13	2.24
31,	1.86	....	1.99	2.32	....	2.05	....	2.36	....	1.99	3.08	....

Notes.—†Maximum 5.60 ft. at 1 A. M. from hydrograph. **Chain broken.

DAILY DISCHARGE, IN SECOND-FEET, OF LACKAWANNA RIVER AT MOOSIC, LACKAWANNA COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1913.

DAY.	AUG.	SEPT.
1,	....	††114
2,	....	††114
3,	....	††114
4,	....	††114
5,	....	††114
6,	....	††114
7,	....	††114
8,	112	††114
9,	112	††114
10,	114	112
11,	116	105
12,	114	105
13,	112	116
14,	116	105
15,	114	94
16,	114	94
17,	126	94
18,	116	116
19,	112	114
20,	112	114
21,	112	155
22,	114	308
23,	129	189
24,	116	148
25,	112	126
26,	142	112
27,	116	112
28,	114	105
29,	112	105
30,	116	109
31,	††115	....

Note.—††Estimated.

DAILY DISCHARGE, IN SECOND-FEET, OF LACKAWANNA RIVER AT MOOSIC, LACKAWANNA COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	121	164	221	221	1410	410	1700	742	216	121	221	121
2,	164	155	204	204	1010	364	2020	621	164	161	204	124
3,	182	142	204	204	846	287	1860	534	158	148	272	158
4,	139	148	197	266	805	252	1290	478	347	129	330	126
5,	126	148	171	298	805	221	1110	772	520	129	238	129
6,	124	137	185	256	606	256	928	1050	342	234	139	101
7,	114	137	272	225	674	261	846	928	266	308	134	90
8,	112	137	410	212	578	308	1290	666	570	282	152	98
9,	112	410	353	212	422	287	2220	742	393	197	124	93
10,	109	878	282	256	381	247	1410	636	298	‡4630	139	91
11,	116	506	277	225	353	201	1140	621	252	2120	139	91
12,	137	381	238	204	287	174	1110	1070	197	1010	261	91
13,	126	342	256	201	266	174	919	2010	212	643	193	91
15,	121	364	238	204	238	221	727	1470	185	459	164	103
15,	98	364	243	182	216	484	727	1070	168	441	152	107
16,	101	405	225	185	238	614	969	837	171	416	142	96
17,	96	399	243	208	247	1110	994	742	148	336	161	91
18,	109	364	225	197	247	1220	829	592	126	422	164	91
19,	103	364	212	182	256	712	674	513	137	393	158	84
20,	472	376	201	174	243	621	1080	478	168	308	208	90
21,	465	342	208	221	212	570	1650	381	145	212	272	91
22,	330	342	185	197	204	542	1270	282	148	212	216	90
23,	243	319	189	185	189	484	994	252	137	277	164	86
24,	197	298	266	266	185	453	846	238	134	216	139	88
25,	230	247	277	376	185	592	689	216	148	903	137	105
26,	272	248	410	303	185	1600	1860	225	142	498	114	93
27,	247	221	277	298	185	4020	1600	347	145	387	114	87
28,	204	201	247	410	399	†7700	1170	405	212	399	116	88
29,	185	230	225	542	....	3760	944	252	148	498	119	86
30,	168	272	243	1180	....	2750	994	234	139	387	158	88
31,	161	....	243	1670	....	1720	....	208	....	292	148	....

Notes.—†Maximum=8010 sec.-ft. ‡Maximum=8280 sec.-ft.

DAILY DISCHARGE, IN SECOND-FEET, OF LACKAWANNA RIVER AT MOOSIC, LACKAWANNA COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	83	78	90	98	1130	570	126	277	208	126	112	542
2,	83	90	96	107	1500	534	112	277	216	121	114	358
3,	83	80	90	107	919	478	134	261	201	132	129	282
4,	80	84	96	108	696	434	134	234	193	139	614	272
5,	80	83	90	103	520	347	132	325	142	155	864	234
6,	91	80	96	107	878	393	132	342	129	126	491	204
7,	88	78	134	1420	757	416	164	319	124	108	358	247
8,	87	84	171	1030	621	292	178	342	126	182	370	234
9,	91	88	158	734	478	261	178	314	129	410	472	208
10,	88	84	114	478	376	204	182	256	105	266	549	216
11,	94	84	119	353	358	193	1180	212	105	197	336	164
12,	83	84	114	846	381	171	1330	212	124	204	234	164
13,	88	84	90	1750	441	161	895	266	126	204	247	158
14,	87	83	129	1010	441	168	599	256	114	221	185	148
15,	88	90	109	757	2120	161	472	189	145	189	197	145
16,	132	107	164	689	†2400	171	399	193	201	182	277	....
17,	109	101	98	542	1570	171	342	238	243	182	308	....
18,	103	94	101	1230	895	161	314	208	247	168	204	....
19,	91	91	109	2340	681	139	266	171	261	148	178	....
20,	94	98	112	1630	549	145	256	161	193	201	158	405
21,	88	98	119	1080	542	145	225	208	155	139	148	549
22,	84	86	103	727	513	139	204	1150	155	137	1070	542
23,	81	86	103	734	520	139	212	829	164	121	911	358
24,	86	80	96	765	1220	139	238	757	145	109	636	298
25,	80	90	105	674	2430	158	221	563	139	107	606	266
26,	88	88	101	556	1340	168	197	542	126	93	336	286
27,	86	86	90	447	870	148	178	428	124	148	292	277
28,	84	93	93	422	696	189	204	364	116	142	272	230
29,	87	90	105	330	....	152	319	347	109	101	606	197
30,	84	98	129	272	....	134	342	287	105	114	727	189
31,	88	....	114	221	....	129	....	238	....	114	689	....

Note.—†Maximum = 3440 sec.-ft.

ESTIMATED MONTHLY DISCHARGE OF LACKAWANNA RIVER AT MOOSIC, LACKAWANNA COUNTY, PA.

(Drainage area 265 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1913.					
September,	308	....	122	0.46	0.51
1913.					
October,	472	96	177	0.67	0.77
November,	878	137	301	1.14	1.27
December,	410	171	246	0.93	1.07
1914.					
January,	1670	174	321	1.21	1.40
February,	1410	185	424	1.60	1.67
March,	8010	174	1060	3.96	4.57
April,	2220	674	1190	4.49	5.01
May,	2010	208	633	2.39	2.75
June,	570	126	218	0.82	0.92
July,	8280	121	554	2.09	2.41
August,	330	114	174	0.66	0.76
September,	158	84	99	0.37	0.42
The year,	8280	84	449	1.69	23.02
1914.					
October,	132	80	89	0.34	0.39
November,	107	78	88	0.33	0.37
December,	171	90	111	0.42	0.48
1915.					
January,	2340	98	699	2.64	3.04
February,	3440	358	923	3.48	3.63
March,	570	129	231	0.87	1.00
April,	1330	112	329	1.24	1.38
May,	1150	161	347	1.31	1.51
June,	261	106	156	0.59	0.66
July,	410	93	161	0.61	0.70
August,	1070	112	409	1.54	1.78

Note.—Chain broken September 16 to 19, 1915, inclusive.

SUSQUEHANNA BASIN—STATION NO. 9.

NORTH BRANCH SUSQUEHANNA RIVER AT WILKES-BARRE, PA.

DESCRIPTION OF STATION.

LOCATION—At four span, steel, through-truss, highway bridge at Market Street, Wilkes-Barre, Luzerne County.

RECORDS AVAILABLE—Discharge complete from March 30, 1899, to September 30, 1915. For other records on this river see North Branch Susquehanna River at Binghamton, N. Y., North Branch Susquehanna River at Towanda and North Branch Susquehanna River at Danville.

DRAINAGE AREA—9,960 square miles.

GAGE—A Mott gage, whose elevation of zero is 505.3 feet above mean sea level, is located on the upstream side of the bridge and is read once daily by Obediah Hemstreet.

CHANNEL—The right bank is low and overflows at gage height of about 20 feet, the left bank is high and overflows only at extreme stages, and the bed is composed of gravel, sand and culm.

DISCHARGE MEASUREMENT OF NORTH BRANCH SUSQUEHANNA RIVER AT WILKES-BARRE, LUZERNE COUNTY, PA.

(Drainage area 9,960 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.ft.	
42	May 7	Wilson & Gough, ...	4973	6.29	12282	0.6 method.

DISCHARGE TABLE FOR NORTH BRANCH SUSQUEHANNA RIVER AT WILKES-BARRE, LUZERNE COUNTY, PA., FROM JANUARY 1, 1912.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.
1.90	820	.30	12560	.70	33020	.10	56340	.50	91070
2.00	845	.40	13000	.80	33520	.20	56980	.60	91990
.10	895	.50	13440	.90	34020	.30	57620	.70	92910
.20	970	.60	13880	11.00	34520	.40	58260	.80	93830
.30	1055	.70	14320	.10	35020	.50	58920	.90	94760
.40	1155	.80	14760	.20	35520	.60	59600	20.00	95700
.50	1270	.90	15200	.30	36020	.70	60280	.10	96660
.60	1395	7.00	15640	.40	36520	.80	60980	.20	97690
.70	1530	.10	16080	.50	37020	.90	61680	.30	98780
.80	1680	.20	16520	.60	37520	16.00	62400	.40	99920
.90	1840	.30	16970	.70	38020	10	63120	.50	101110
3.00	2005	.40	17420	.80	38520	.20	63850	.60	102300
.10	2185	.50	17870	.90	39020	.30	64590	.70	103540
.20	2380	.60	18320	12.00	39520	.40	65340	.80	104830
.30	2590	.70	18770	.10	40020	.50	66100	.90	106180
.40	2810	.80	19220	.20	40520	.60	66860	21.00	107600
.50	3035	.90	19670	.30	41020	.70	67630	.10	109030
.60	3265	8.00	20120	.40	41520	.80	68410	.20	110480
.70	3500	.10	20590	.50	42020	.90	69200	.30	111950
.80	3750	.20	21060	.60	42520	17.00	70000	.40	113440
.90	4000	.30	21530	.70	43040	.10	70800	.50	114950
4.00	4250	.40	22000	.80	43560	.20	71600	.60	116460
.10	4510	.50	22470	.90	44080	.30	72400	.70	117990
.20	4780	.60	22940	13.00	44600	.40	73200	.80	119540
.30	5070	.70	23410	.10	45120	.50	74000	.90	121110
.40	5380	.80	23880	.20	45640	.60	74800	22.00	122700
.50	5710	.90	24350	.30	46160	.70	75600	.10	124280
.60	6050	9.00	24820	.40	46680	.80	76400	.20	125860
70	6400	.10	25290	.50	47200	.90	77200	.30	127440
.80	6750	.20	25760	.60	47720	18.00	78000	.40	129020
.90	7100	.30	26230	.70	48240	.10	78810	.50	130600
5.00	7450	.40	26700	.80	48760	.20	79630	.60	132180
.10	7800	.50	27170	.90	49280	.30	80460	.70	133760
.20	8160	.60	27640	14.00	49820	.40	81300	.80	135340
.30	8540	.70	28110	.10	50380	.50	82150	.90	136920
.40	8930	.80	28580	.20	50940	.60	83000	23.00	138500
.50	9320	.90	29050	.30	51500	.70	83860	24.00	154250
.60	9710	10.00	29520	.40	52080	.80	84730	25.00	170000
.70	10100	.10	30020	.50	52660	.90	85610	26.00	186000
.80	10500	.20	30520	.60	53240	19.00	86500	27.00	201500
.90	10900	.30	31020	.70	53840	.10	87400	28.00	217300
6.00	11300	.40	31520	.80	54440	.20	88310	29.00	233000
.10	11710	.50	32020	.90	65060	.30	89230	.50	240850
.20	12120	.60	32520	15.00	65700	.40	90150	30.00	248700

DAILY MEAN GAGE HEIGHTS, IN FEET, OF NORTH BRANCH SUSQUEHANNA RIVER AT WILKES-BARRE, LUZERNE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	2.67	2.59	3.35	....	5.05	10.57	5.51	6.76	4.23	3.05	5.79	5.55
2,	2.70	2.58	3.40	....	8.76	9.24	5.26	6.10	3.97	6.73	5.90	5.17
3,	2.64	2.55	3.33	....	8.79	8.53	5.04	6.08	3.84	9.28	7.41	4.92
4,	2.65	2.52	3.22	....	8.97	7.89	4.91	5.86	3.71	10.43	8.79	4.66
5,	2.62	2.48	3.25	....	7.87	6.97	4.80	5.78	3.59	10.09	13.89	4.40
6,	2.62	2.55	3.40	....	7.87	6.82	4.72	6.36	3.43	9.18	13.32	4.20
7,	2.60	2.50	3.52	....	7.77	6.62	4.81	6.31	3.37	8.28	14.93	4.14
8,	2.58	2.55	3.58	†17.45	8.07	6.41	5.52	5.91	3.24	7.08	11.29	4.10
9,	2.58	2.55	3.60	16.63	7.71	6.09	7.18	5.67	3.09	20.48	9.81	4.04
10,	2.58	2.52	3.60	12.48	7.37	5.97	7.63	5.83	3.07	22.51	8.72	4.04
11,	2.60	2.52	3.50	9.84	6.42	5.89	9.04	5.63	3.07	15.79	8.49	3.94
12,	2.48	2.53	3.48	8.68	6.07	5.57	§10.86	5.32	2.98	12.94	7.79	3.84
13,	2.48	2.55	3.48	11.98	6.27	5.39	11.26	5.02	2.90	11.58	6.96	4.07
14,	2.48	2.53	3.48	11.45	6.65	5.39	10.53	4.72	2.90	11.16	6.54	3.94
15,	2.52	2.58	*	10.16	8.07	5.15	9.06	4.50	2.90	11.19	6.29	3.76
16,	2.65	2.71	....	9.28	17.07	5.12	7.86	4.88	2.97	9.45	5.91	6.44
17,	2.72	2.88	....	8.34	18.27	5.19	7.12	4.36	3.10	8.28	6.01	6.30
18,	2.72	2.88	....	8.12	14.87	5.22	6.56	4.38	3.17	8.44	5.82	5.48
19,	2.68	3.18	....	13.38	11.53	5.12	6.30	4.26	2.97	8.69	5.39	5.14
20,	2.70	3.42	....	16.68	9.87	4.97	5.92	4.26	3.13	7.19	5.09	5.55
21,	2.68	3.42	....	15.62	8.77	4.87	5.56	4.26	3.07	6.71	4.81	5.30
22,	2.72	3.31	....	12.74	8.47	4.81	5.36	4.90	3.07	6.13	5.36	5.55
23,	2.75	3.03	....	10.34	8.47	4.97	5.16	5.22	3.04	5.74	8.09	5.04
24,	2.78	2.88	....	8.78	9.47	4.97	5.06	5.26	3.07	5.44	8.69	5.21
25,	2.74	2.82	....	7.98	20.29	5.07	4.90	5.52	3.07	5.12	7.79	4.90
26,	2.74	2.88	....	7.64	‡23.23	5.77	4.86	5.28	3.25	4.90	6.82	4.83
27,	2.72	2.90	....	7.18	18.77	6.27	4.68	5.00	3.17	5.16	6.09	4.21
28,	2.63	2.92	....	7.08	18.17	6.97	4.56	4.91	3.18	5.91	5.59	4.14
29,	2.58	2.98	....	6.62	....	6.42	4.73	4.86	3.16	6.62	5.43	4.61
30,	2.58	2.98	....	5.94	....	5.97	6.76	4.71	3.01	5.92	5.59	4.68
31,	2.54	....	....	5.34	....	5.82	....	4.46	....	5.51	5.63	....

Notes.—*River frozen December 15, 1914, to January 7, 1915, inclusive. †Maximum 18.80 ft. at midnight from hydrograph. ‡Maximum 23.30 ft. at noon from hydrograph. §Maximum 11.50 ft. at 10 P. M. from hydrograph.

DAILY DISCHARGE, IN SECOND-FEET, OF NORTH BRANCH SUSQUEHANNA RIVER AT WILKES-BARRE, LUZERNE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1490	1380	2700	1490	7620	32400	9360	14600	4870	2100	10500	9520
2,	1530	1370	2810	1490	23700	25900	8390	11700	4180	14500	10900	8050
3,	1450	1330	2660	1490	23800	22600	7530	11600	3850	26100	17500	7170
4,	1460	1300	2420	1490	24700	19600	7140	10700	3520	31700	23800	6260
5,	1420	1250	2480	1490	19500	15500	6750	10400	3240	30000	49200	5880
6,	1420	1330	2810	1490	19500	14800	6470	12800	2880	25700	46300	4780
7,	1400	1270	3080	6050	19100	14000	6780	12600	2740	21400	55300	4620
8,	1370	1330	3220	†73600	20500	13000	9400	10900	2460	16000	36000	4510
9,	1370	1330	3260	67100	18500	11700	16400	9980	2170	101000	23600	4350
10,	1370	1300	3260	41900	17300	11200	18500	10600	2130	131000	23500	4350
11,	1400	1300	3040	28800	13100	10900	25000	9830	2130	60900	22400	4100
12,	1250	1310	2990	23300	11600	9590	§53800	8620	1970	41300	19200	3850
13,	1250	1330	2990	39400	12400	8890	35800	7520	1840	37400	15500	4430
14,	1250	1310	2990	36800	14100	8890	32200	6470	1840	35300	13600	4100
15,	1300	1370	*1490	30300	20400	7980	25100	5710	1840	35500	12500	3650
16,	1460	1540	1490	26100	70600	7870	19500	5320	1960	26900	10900	13200
17,	1560	1810	1490	21700	80200	8120	16200	5260	2180	21400	11300	12600
18,	1560	1810	1490	20700	54900	8240	13700	5320	2320	22200	10600	9240
19,	1500	2340	1490	46600	37200	7870	12600	4950	1960	23400	8890	7940
20,	1530	2860	1490	67500	28900	7340	11000	4950	2240	16500	7760	9520
21,	1500	2860	1490	59700	23700	7000	9550	4950	2130	14400	6780	8540
22,	1560	2610	1490	43200	22300	6780	8770	7100	2130	11800	8770	9520
23,	1600	2060	1490	31200	22300	7340	8020	8240	2080	10300	20500	7590
24,	1650	1810	1490	23800	27000	7340	7660	8390	2130	9090	23400	8200
25,	1590	1710	1490	20000	98700	7700	7100	9400	2130	7870	19200	7100
26,	1590	1810	1490	18500	‡142000	10400	6960	8270	2480	7100	14800	5160
27,	1560	1840	1490	16400	84500	12400	6330	7450	2320	8020	11700	4810
28,	1440	1870	1490	16000	45500	15500	5910	7140	2340	10900	9670	4620
29,	1370	1970	1490	14000	....	13100	6500	6960	2300	14000	9050	6080
30,	1370	1970	1490	11100	....	11200	14600	6440	2020	11000	9670	6330
31,	1320	....	1490	8700	....	10600	....	5580	....	9360	9830	....

Notes.—*River frozen December 15, 1914 to January 7, 1915, inclusive, and discharge estimated from climatological records. †Maximum=84700 sec.-ft. ‡Maximum=143000 sec.-ft. §Maximum=37000 sec.-ft.

ESTIMATED MONTHLY DISCHARGE OF NORTH BRANCH SUSQUEHANNA RIVER AT WILKES BARRE, LUZERNE COUNTY, PA.

(Drainage area 9,960 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	1650	1250	1450	0.15	0.17
November,	2860	1250	1690	0.17	0.19
December,	3260	....	2130	0.21	0.25
1915.					
January,	84700	....	25900	2.60	3.00
February,	143000	7620	35900	3.60	3.75
March,	32400	6780	12100	1.21	1.40
April,	37000	5910	13400	1.34	1.50
May,	14600	4950	8380	0.84	0.97
June,	4870	1840	2480	0.25	0.28
July,	131000	2100	27000	2.71	3.12
August,	55000	6780	18600	1.87	2.16
September,	13200	3650	6650	0.67	0.75
The year,	143000	1250	13600	1.30	17.54

Note.—River frozen December 15, 1914, to January 7, 1915, inclusive, and discharge estimated from climatological records.

SUSQUEHANNA BASIN—STATION NO. 10.

FISHING CREEK AT BLOOMSBURG, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, wooden covered, highway bridge, known as "Red Rock Bridge" at Bloomsburg, Columbia County.

RECORDS AVAILABLE—Discharge measurements and gage heights from January 27, 1914, to September 30, 1915.

DRAINAGE AREA—355 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the upstream side of the bridge and is read twice daily by L. Norman Cox.

CHANNEL—Both banks are high and not subject to overflow, and the bed is composed of sand and gravel.

DISCHARGE MEASUREMENTS OF FISHING CREEK AT BLOOMSBURG, COLUMBIA COUNTY, PA.

(Drainage area 355 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.ft.	
4	Jan. 12	Wilson & Gough, ...	684	5.15	1793	0.6 method.
5	Jan. 15	Critchlow, ...	744	5.66	2230	0.6 method.
6	Jan. 16	Critchlow, ...	649	5.09	1594	0.6 method.
7	May 4	Wilson & Gough, ...	402	3.39	389	0.6 method.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF FISHING CREEK AT BLOOMSBURG, COLUMBIA COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	2.34	2.36	2.65	3.15	4.22	4.57	3.22	3.62	3.57	4.24	3.24	4.20
2,	2.57	2.40	2.76	3.11	6.91	4.38	3.15	3.61	3.51	4.00	3.24	3.98
3,	2.44	2.78	2.76	3.16	5.40	4.12	3.10	3.49	3.59	4.46	3.89	3.80
4,	2.60	2.64	2.66	3.11	4.76	3.88	3.10	3.46	3.47	4.34	5.01	3.66
5,	2.62	2.40	2.68	3.04	4.42	3.84	3.10	4.08	3.29	4.28	5.05	3.59
6,	2.54	2.47	2.46	2.90	5.08	3.82	3.10	3.96	3.25	4.13	4.35	3.58
7,	2.32	2.42	2.41	†9.52	4.58	3.78	3.12	3.84	3.15	3.85	4.07	3.58
8,	2.23	2.61	3.76	7.74	4.41	3.50	3.19	3.80	3.17	3.98	4.15	3.66
9,	2.32	2.62	3.55	5.80	4.00	3.46	3.18	3.78	3.13	5.70	4.17	3.47
10,	2.46	2.34	3.30	4.84	3.84	3.56	3.24	3.55	2.86	4.36	3.97	3.38
11,	2.59	2.66	3.28	4.40	3.67	3.52	4.00	3.50	2.89	4.03	3.75	3.28
12,	2.56	2.64	3.28	5.38	3.76	3.54	5.11	3.42	3.47	3.93	3.65	3.22
13,	2.44	2.74	3.10	10.12	3.80	3.46	4.52	3.45	3.26	3.72	3.77	3.21
14,	2.62	2.42	3.10	6.69	3.85	3.46	4.16	3.43	3.20	3.99	3.55	3.16
15,	2.60	2.58	3.16	5.64	6.14	3.52	3.96	3.36	3.20	3.60	3.43	3.15
16,	2.62	3.35	3.32	5.12	7.06	3.52	3.84	3.24	3.28	3.54	5.53	3.10
17,	2.60	3.20	3.20	4.74	5.70	3.44	3.69	3.36	3.21	3.47	4.57	3.02
18,	2.90	3.09	*3.10	5.52	5.05	3.35	3.65	3.32	3.09	3.34	4.09	2.93
19,	2.59	2.96	3.12	8.50	4.66	3.45	3.54	3.20	3.05	3.88	3.80	3.44
20,	2.37	2.81	2.65	7.06	4.46	3.46	3.50	3.18	3.34	3.44	3.65	3.34
21,	2.61	2.94	3.09	5.70	4.35	3.40	3.34	3.36	3.25	3.28	3.54	3.54
22,	2.58	2.78	3.12	4.90	4.34	3.32	3.30	4.46	3.24	3.18	6.55	3.62
23,	2.42	2.87	3.10	4.61	4.36	3.30	3.36	5.47	3.59	3.18	5.23	3.34
24,	2.54	2.68	2.92	4.76	6.38	3.26	3.32	4.54	3.85	3.14	4.53	3.26
25,	2.42	2.59	2.83	4.33	‡10.45	3.30	3.32	4.78	3.23	3.00	4.25	3.16
26,	2.40	2.64	2.79	4.16	6.88	3.26	3.22	4.40	3.31	3.16	3.97	3.07
27,	2.58	2.63	2.94	4.00	5.53	3.22	3.32	4.34	3.20	3.78	3.79	3.20
28,	2.50	2.64	2.74	3.88	4.90	3.22	3.32	4.11	3.07	3.34	3.67	3.14
29,	2.52	2.60	2.87	3.67	....	3.22	3.70	3.89	3.11	3.26	4.79	3.05
30,	2.61	2.90	2.86	3.45	....	3.26	3.75	3.78	3.09	3.20	4.64	3.00
31,	2.68	....	3.15	3.52	....	3.14	....	3.68	....	3.71	4.61	....

Notes.—*Creek frozen December 18, 1914, to January 6, 1915, inclusive. †Maximum 12.00 ft. at 5 P. M. ‡Maximum 12.60 ft. at 5 A. M. from hydrograph.

SUSQUEHANNA BASIN—STATION NO. 11.

NORTH BRANCH SUSQUEHANNA RIVER AT DANVILLE, PA.

DESCRIPTION OF STATION.

LOCATION—At seven span, steel, through-truss, highway bridge between Danville and South Danville, Montour County.

RECORDS AVAILABLE—Discharge complete from March 25, 1899, to December 31, 1903, and March 23, 1905, to September 30, 1915. For other records on this river see North Branch Susquehanna River at Binghamton, N. Y., North Branch Susquehanna River at Towanda and North Branch Susquehanna River at Wilkes-Barre.

DRAINAGE AREA—11,300 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge and is read twice daily by E. F. Bell.

CHANNEL—The right bank overflows in extreme stages, the left bank is high and does not overflow, and the bed is composed of rocks and gravel.

DISCHARGE MEASUREMENT OF NORTH BRANCH SUSQUEHANNA RIVER AT DANVILLE, MONTOUR COUNTY, PA.

(Drainage area 11,300 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.ft.	
35	May 3	Wilson & Gough, ...	4127	5.06	14022	0.6 method.

DAILY DISCHARGE, IN SECOND-FEET, OF NORTH BRANCH SUSQUEHANNA RIVER AT DANVILLE, MONTOUR COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	2280	1920	2760	1700	10300	42800	10500	16500	7480	3650	11100	13200
2,	2280	1920	3360	1700	32400	31700	9920	14700	6720	3980	12100	11500
3,	2180	1920	3620	1700	27000	26700	9370	13200	6520	23500	14800	10300
4,	2160	1920	3490	1700	31700	22700	8460	13200	5720	32300	21900	9140
5,	2130	1900	3110	1700	26100	19500	8010	13200	5230	32600	55000	8140
6,	2040	1880	3430	1700	23900	17400	7660	13200	4770	28500	58500	7570
7,	2080	1880	3920	6890	24500	16300	7570	15300	4410	25300	66500	7010
8,	2130	1920	5370	71800	23000	15500	8100	14100	4340	19900	49900	6600
9,	2080	1940	4800	†97100	22400	14000	15200	12700	4120	51300	35100	6440
10,	2040	2040	4730	59800	20900	13000	17600	12600	3650	132000	28400	6120
11,	2040	2040	4520	38100	17400	12800	23000	12000	3560	94200	24900	6120
12,	1940	2040	4370	31700	14600	11600	33500	10900	3650	68600	22800	5720
13,	1920	2040	4090	58100	14500	11000	40600	9920	3720	43400	19100	5520
14,	1850	2040	4520	61500	14700	10600	38100	8820	3400	41300	15900	5720
15,	1810	2040	*1700	42300	24200	10100	30000	7790	3560	39600	15300	5330
16,	1990	2400	1700	32800	74600	9740	23300	7140	3650	33000	17700	6040
17,	2230	2590	1700	27800	98900	9600	19000	6930	3650	25200	15600	14400
18,	2280	2960	1700	25700	76300	9370	16000	6800	3560	21400	13600	12400
19,	2430	2870	1700	47000	51900	9370	14500	6640	3650	25300	12000	10100
20,	2380	2960	1700	85200	36100	8910	13200	6320	3720	20800	10400	10300
21,	2280	3590	1700	80000	28500	8460	12000	6640	3720	16200	8550	10400
22,	2280	3590	1700	58800	25400	8100	10500	10100	3650	14100	13000	11700
23,	2280	3170	1700	39800	24800	8370	10100	12200	4050	12400	22200	10200
24,	2330	3110	1700	31700	28300	8550	9600	11700	3560	11100	30400	9140
25,	2280	2530	1700	25400	95600	8460	9140	13300	3460	9740	25900	8910
26,	2380	2580	1700	22700	‡143000	9870	8680	12500	3650	8600	20600	8240
27,	2380	2580	1700	19800	117000	11500	8100	11000	3880	9740	16100	7140
28,	2160	2670	1700	18300	77400	15200	8460	10200	3720	12100	13800	6320
29,	2160	2530	1700	16500	....	16500	8370	9460	3650	13900	12600	6040
30,	2180	2580	1700	15500	....	18700	10500	9140	3400	13900	13800	7570
31,	2040	....	1700	11700	....	11300	....	8370	....	11700	13800	....

Notes.—*River frozen December 15, 1914, to January 7, 1915, inclusive, and discharge estimated from North Branch Susquehanna River at Wilkes-Barre. †Maximum=103000 sec.-ft. ‡Maximum=151000 sec.-ft.

ESTIMATED MONTHLY DISCHARGE OF NORTH BRANCH SUSQUEHANNA AT DANVILLE, MONTOUR COUNTY, PA.

(Drainage area 11,300 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	2430	1810	2160	0.19	0.22
November,	3590	1880	2400	0.21	0.24
December,	5370	....	2740	0.24	0.28
1915.					
January,	103000	....	33100	2.93	3.38
February,	151000	10300	43100	3.81	3.97
March,	42300	8100	14200	1.26	1.45
April,	40600	7570	15000	1.33	1.48
May,	16500	6320	10900	0.96	1.11
June,	7480	3400	4190	0.37	0.41
July,	132000	3650	28700	2.54	2.93
August,	66500	8550	23100	2.04	2.35
September,	14400	5330	8440	0.75	0.84
The year,	151000	1810	15700	1.39	18.66

Note.—River frozen December 15, 1914, to January 7, 1915, inclusive, and discharge estimated from North Branch Susquehanna River at Wilkes-Barre.

SUSQUEHANNA BASIN—STATION NO. 12.

CHEST CREEK AT ST. LU, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, through-truss, highway bridge, at St. Lu, Clearfield County.

RECORDS AVAILABLE—Discharge measurements and gage heights from October 2, 1913, to August 30, 1915.

DRAINAGE AREA—110 square miles.

GAGE—A standard chain gage, whose elevation of zero was arbitrary, was located on the downstream side of the bridge and was read twice daily by J. F. Blankenbicker.

CHANNEL—The right is low and subject to overflow at extreme stages, the left bank is high and not subject to overflow, and the bed is composed of gravel.

REMARKS—There is a low, abandoned, timber crib dam about 200 feet above the bridge. The head race leads around the bridge on the left and water may pass through during extreme stages. This station was discontinued on August 30, 1915.

DISCHARGE MEASUREMENT OF CHEST CREEK, AT ST. LU, CLEARFIELD COUNTY, PA.

(Drainage area 110 square miles.)

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.ft.	
6	Sept. 4	Bowen & Wilson, ...	39	3.58	27	Wading 50 ft. below bridge.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF CHEST CREEK AT ST. LU. CLEARFIELD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.
1,	3.35	3.45	3.56	4.66	6.26	4.37	3.97	3.67	4.08	4.18	3.78
2,	3.35	3.45	3.66	4.56	6.46	4.27	4.07	3.67	4.28	4.18	3.78
3,	3.35	3.40	3.56	4.46	5.86	4.17	3.17	3.67	5.38	4.48	3.98
4,	3.35	3.35	3.66	4.36	4.96	4.17	3.87	3.67	5.28	4.38	4.18
5,	3.35	3.35	3.61	4.36	4.76	4.07	3.87	3.67	4.88	4.38	4.48
6,	3.35	3.45	3.56	4.46	4.56	4.07	3.87	3.77	4.58	4.18	4.18
7,	3.35	3.45	3.46	9.76	4.56	4.07	3.97	3.77	4.38	4.08	4.08
8,	3.35	3.45	3.66	5.46	4.46	4.07	4.07	3.77	4.28	4.38	3.98
9,	3.35	3.45	3.86	5.06	4.46	3.97	3.97	3.77	4.18	4.28	4.78
10,	3.35	3.40	3.86	4.66	4.26	3.97	4.07	3.67	4.08	4.03	4.48
11,	3.75	3.45	3.71	4.56	4.26	3.87	4.17	3.67	3.98	3.98	4.18
12,	3.65	3.40	3.76	4.56	4.36	3.87	4.27	3.67	3.98	4.08	4.08
13,	3.55	3.45	3.66	4.46	5.26	3.97	4.17	3.67	4.08	3.98	4.08
14,	3.55	3.40	3.56	4.36	5.46	3.97	4.07	3.67	4.28	3.98	3.98
15,	3.45	3.45	3.56	4.36	6.46	4.07	3.97	3.67	4.28	3.88	3.88
16,	3.65	3.55	3.46	4.26	6.16	4.17	3.97	3.67	4.18	3.88	3.78
17,	3.65	3.55	3.46	4.16	5.86	4.07	3.97	3.77	4.08	3.98	3.78
18,	3.60	3.50	3.56	6.06	5.46	4.17	3.87	3.77	3.88	3.88	3.78
19,	3.45	3.45	3.66	6.46	4.56	4.07	3.97	3.67	3.88	3.88	3.68
20,	3.45	3.45	*4.26	5.86	4.46	4.07	3.87	3.67	3.78	3.78	3.68
21,	3.45	3.45	4.76	5.16	4.46	3.97	3.87	3.67	3.78	4.18	3.68
22,	3.45	3.45	4.66	4.66	4.46	3.87	3.77	4.67	3.78	4.08	3.78
23,	3.35	3.35	4.56	4.56	4.56	3.97	3.77	4.67	3.68	3.88	3.78
24,	3.35	3.45	4.61	4.46	5.26	4.07	3.77	4.47	3.68	3.88	3.78
25,	3.45	3.45	4.56	4.46	5.56	4.07	3.77	4.57	3.68	3.78	3.68
26,	3.40	3.35	4.46	4.36	4.96	4.17	3.77	4.47	3.68	3.68	3.68
27,	3.35	3.45	4.36	4.36	4.56	4.07	3.77	4.37	3.78	3.78	3.58
28,	3.35	3.45	4.36	4.26	4.46	4.07	3.77	4.37	3.78	3.78	3.58
29,	3.40	3.45	4.46	4.26	....	4.17	3.72	4.27	3.68	3.68	3.58
30,	3.45	3.45	4.56	4.16	....	4.07	3.72	4.27	3.68	3.78	3.58
31,	3.45	....	4.66	4.16	....	3.97	....	‖4.18	....	3.88	....

Notes.—*Creek frozen December 20, 1914, to January 6, 1915, inclusive. Ice gorge on January 7, 1915. This station discontinued on August 30, 1915. ‖Interpolated.

SUSQUEHANNA BASIN—STATION NO. 13.

WEST BRANCH SUSQUEHANNA RIVER AT BOWER, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge about 4 miles below Mahaffey, Clearfield County.

RECORDS AVAILABLE—Discharge complete from October 2, 1913, to September 30, 1915. For other records on this river see West Branch Susquehanna River at Clearfield, West Branch Susquehanna River at Renovo, West Branch Susquehanna River at Williamsport and West Branch Susquehanna River at Lewisburg; also see West Branch Susquehanna River at Allenwood in the 1910-11 Report of the Water Supply Commission.

DRAINAGE AREA—320 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge and is read twice daily by A. T. Bell.

CHANNEL—The right bank is low and subject to overflow at extreme stages, the left bank is high and not subject to overflow, and the bed is composed of gravel.

DISCHARGE MEASUREMENT OF WEST BRANCH SUSQUEHANNA RIVER AT BOWER, CLEARFIELD COUNTY, PA.

(Drainage area 320 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec. ft.	
17	Sept. 4	Bowen & Wilson, ...	86	4.21	70	Wading 700 ft. upstream.

DISCHARGE TABLE FOR WEST BRANCH SUSQUEHANNA RIVER AT BOWER, CLEARFIELD COUNTY, PA., FROM OCTOBER 1, 1913.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
3.60	39	.80	159	6.00	619	.20	1580	.40	3085
.70	42	.90	180	.10	681	.30	1682	.50	3235
.80	45	5.00	204	.20	744	.40	1786	.60	3390
.90	50	.10	231	.30	810	.50	1892	.70	3552
4.00	56	.20	258	.40	876	.60	2010	.80	3720
.10	62	.30	288	.50	948	.70	2130	.90	3900
.20	71	.40	324	.60	1026	.80	2250	9.00	4080
.30	81	.50	366	.70	1104	.90	2385		
.40	93	.60	408	.80	1188	8.00	2520		
.50	107	.70	456	.90	1283	.10	2655		
.60	123	.80	508	7.00	1380	.20	2795		
.70	141	.90	562	.10	1480	.30	2940		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF WEST BRANCH SUSQUEHANNA RIVER AT BOWER, CLEARFIELD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	3.74	3.82	4.28	....	6.75	5.86	5.04	4.55	5.25	5.55	4.70	4.35
2,	3.69	3.78	4.15	....	10.71	5.65	4.98	4.50	5.38	5.75	4.82	4.22
3,	3.67	3.80	4.12	....	8.95	5.42	4.88	4.49	‡7.57	6.48	5.98	4.20
4,	3.71	3.80	4.21	....	7.38	5.18	4.86	4.55	7.42	6.38	5.48	4.12
5,	3.71	3.77	4.13	....	6.70	5.25	4.98	4.70	6.72	6.10	5.92	4.18
6,	3.69	3.74	4.14	....	6.88	5.22	4.88	4.65	6.25	5.68	5.72	4.22
7,	3.68	3.72	4.37	†11.52	6.66	5.30	5.02	4.60	5.80	5.32	5.35	4.30
8,	3.70	3.71	4.78	10.25	6.22	5.15	5.35	4.82	5.80	6.55	5.14	4.26
9,	3.91	3.79	4.96	8.32	5.98	5.00	5.20	4.85	5.48	6.78	7.03	4.29
10,	3.84	3.94	4.84	7.34	5.44	5.06	5.08	4.72	5.22	6.05	6.52	4.25
11,	3.91	3.86	4.86	6.32	5.56	5.22	5.30	4.68	5.12	5.68	5.78	4.16
12,	4.08	3.75	4.82	5.78	6.40	5.05	5.68	4.62	5.02	6.15	5.72	4.11
13,	4.10	3.85	4.81	6.18	7.85	4.95	5.48	4.52	5.02	5.62	5.50	4.45
14,	4.40	3.78	4.68	5.82	8.13	5.05	5.30	4.48	6.15	5.25	5.10	4.30
15,	4.32	3.79	4.64	5.64	10.23	5.48	5.18	4.42	5.68	5.08	5.02	4.01
16,	4.26	4.52	*	5.32	9.32	5.65	5.08	4.42	5.72	5.11	4.85	4.00
17,	4.42	4.50	....	5.45	7.88	5.50	4.98	4.52	5.35	5.75	4.72	4.00
18,	4.22	4.28	....	8.25	7.02	5.45	5.02	4.62	5.15	5.35	4.70	3.90
19,	4.14	4.21	....	9.89	6.50	5.32	4.90	4.52	4.98	5.00	4.60	5.13
20,	4.08	4.12	....	8.28	6.10	5.18	4.90	4.42	4.82	4.82	4.40	4.62
21,	3.98	4.16	....	7.38	6.02	5.14	4.85	4.40	4.80	5.82	4.62	4.30
22,	3.96	4.12	....	6.58	6.10	5.16	4.86	5.38	4.70	5.80	4.79	4.62
23,	3.93	4.02	....	6.25	6.25	5.18	4.78	6.50	4.55	5.30	4.20	4.11
24,	3.89	3.88	....	6.11	7.65	5.12	4.66	6.12	4.50	5.05	4.25	4.14
25,	3.86	3.84	....	5.98	8.20	5.10	4.72	6.28	4.48	4.85	4.05	4.09
26,	3.80	3.92	....	5.79	7.25	5.65	4.79	6.05	4.45	4.80	4.05	4.06
27,	3.76	4.00	....	5.52	6.48	5.38	4.68	5.78	4.68	4.70	4.15	4.04
28,	3.76	3.94	....	5.16	6.14	5.22	4.68	5.50	4.52	4.68	3.78	4.15
29,	3.69	3.90	....	5.02	....	5.28	4.56	5.25	4.48	4.72	4.00	4.10
30,	3.80	3.95	....	5.17	....	5.28	4.56	5.30	4.65	4.95	4.30	4.10
31,	3.89	....	....	5.85	....	5.10	....	5.62	....	4.90	4.18	....

Notes.—*River frozen December 16, 1914, to January 6, 1915, inclusive; ice gorge December 21, 1914, to January 6, 1915. †Maximum 12.20 ft. at 1 P. M. ‡Maximum 8.10 ft. at 5.30 P. M.

DAILY DISCHARGE, IN SECOND-FEET, OF WEST BRANCH SUSQUEHANNA RIVER AT BOWER, CLEARFIELD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30. 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	43	46	79	134	1150	540	215	115	278	387	141	87
2,	42	44	66	134	7300	432	199	107	317	482	163	73
3,	41	45	64	134	8990	332	176	106	‡1970	934	608	71
4,	42	45	72	134	1760	253	172	115	1810	863	358	64
5,	42	44	65	134	1100	273	199	141	1120	681	578	69
6,	42	43	66	134	1260	264	176	132	777	446	466	73
7,	41	43	89	†8830	1070	288	209	123	508	295	306	81
8,	42	42	155	6390	757	244	306	163	508	987	242	77
9,	51	45	194	2970	608	204	258	170	358	1170	1410	80
10,	47	52	167	1720	341	226	226	145	264	650	964	76
11,	51	48	172	823	391	264	288	137	236	446	498	67
12,	61	44	163	498	876	218	446	127	209	714	466	63
13,	62	48	161	731	2320	192	358	110	209	418	366	100
14,	93	44	137	519	2700	218	288	104	714	273	231	81
15,	83	45	130	427	6360	358	253	96	446	226	209	57
16,	77	110	*86	295	4680	432	226	96	466	234	170	56
17,	96	107	86	345	2360	366	199	110	306	482	145	56
18,	73	79	86	2870	1400	345	209	127	244	306	141	50
19,	66	72	86	5730	948	295	180	110	199	204	123	239
20,	61	64	86	2910	661	253	180	96	163	163	93	127
21,	55	67	86	1760	631	242	170	93	159	519	127	81
22,	54	64	86	1010	681	247	172	317	141	508	157	127
23,	52	57	86	777	777	253	155	948	115	288	71	63
24,	50	49	86	687	2070	236	134	694	107	218	76	66
25,	48	47	86	608	2800	231	145	797	104	170	59	61
26,	45	51	86	503	1630	432	157	650	100	159	59	60
27,	44	56	86	374	934	317	137	498	137	141	66	58
28,	44	52	86	247	706	264	137	366	110	137	44	66
29,	42	50	86	209	....	282	117	273	104	145	56	62
30,	45	51	86	250	....	282	117	288	132	192	81	62
31,	50	....	86	306	....	231	....	418	....	180	69	....

Notes.—*River frozen December 16, 1914, to January 6, 1915, inclusive, and discharge estimated from West Branch Susquehanna River at Williamsport. †Maximum=10200 sec.-ft. ‡Maximum=2660 sec.-ft. Discharges above 4080 sec.-ft. are estimated.

ESTIMATED MONTHLY DISCHARGE OF WEST BRANCH SUSQUEHANNA RIVER AT BOWER, CLEARFIELD COUNTY, PA.

(Drainage area 320 square miles)

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	96	41	54	0.17	0.20
November,	110	42	55	0.17	0.19
December,	....	....	102	0.32	0.37
1915.					
January,	††10200	....	1380	4.31	4.97
February,	††7300	341	1870	5.84	6.08
March,	540	192	291	0.91	1.05
April,	446	117	207	0.65	0.72
May,	948	93	251	0.78	0.90
June,	2660	100	410	1.28	1.48
July,	1170	137	420	1.31	1.51
August,	1410	44	275	0.86	0.99
September,	239	50	78	0.24	0.27
The year,	††10200	41	449	1.40	18.68

Note.—River frozen December 16, 1914, to January 6, 1915, inclusive; ice gorge December 21, 1914, to January 6, 1915, and discharge estimated from West Branch Susquehanna River at Williamsport. ††Estimated.

SUSQUEHANNA BASIN—STATION NO. 14.

WEST BRANCH SUSQUEHANNA RIVER AT CLEARFIELD, PA.

DESCRIPTION OF STATION.

LOCATION—At two span, steel, through-truss, highway bridge at Market Street, Clearfield, Clearfield County.

RECORDS AVAILABLE—Gage heights from October 2, 1913, to September 30, 1915. For other records on this river see West Branch Susquehanna River at Bower, West Branch Susquehanna River at Renovo, West Branch Susquehanna River at Williamsport and West Branch Susquehanna River at Lewisburg; also West Branch Susquehanna River at Allenwood in the 1910-11 Report of the Water Supply Commission.

DRAINAGE AREA—487 square miles.

GAGE—A staff gage, whose elevation of zero is 1,094.8 feet above mean sea level, is located on the downstream side of the pier and is read twice daily by H. P. Bridge.

CHANNEL—Both banks are high and not subject to overflow.

REMARKS—The U. S. Weather Bureau has observed gage heights at this station since May 1, 1902.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF WEST BRANCH SUSQUEHANNA RIVER AT CLEARFIELD CLEARFIELD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.70	0.90	1.15	2.20	2.50	2.15	1.40	0.90	1.50	1.25	1.05	0.75
2,	0.70	0.90	1.20	2.20	5.80	1.90	1.40	0.90	1.55	1.50	1.00	0.70
3,	0.70	0.90	1.40	2.00	4.57	1.80	1.35	0.80	2.60	1.90	1.10	0.55
4,	0.70	0.90	1.30	1.95	3.25	1.70	1.30	0.80	3.20	2.15	1.40	0.40
5,	0.70	0.90	1.20	1.90	2.60	1.70	1.30	0.95	2.60	1.95	2.00	0.40
6,	0.35	0.90	1.20	1.90	2.50	1.60	1.30	0.95	2.10	1.75	1.55	0.60
7,	0.30	0.90	1.20	†6.30	2.45	1.60	1.45	0.90	1.85	1.60	1.35	0.90
8,	0.70	0.90	1.20	5.03	2.15	1.50	1.60	0.90	1.70	1.90	1.30	0.80
9,	0.70	0.90	1.20	3.35	2.00	1.45	1.50	0.90	1.65	2.95	‡1.90	0.80
10,	0.70	0.90	1.25	2.65	2.00	1.35	1.45	0.90	1.55	2.10	2.10	0.75
11,	1.00	0.90	1.30	2.55	1.90	1.30	1.50	0.90	1.40	1.80	1.75	0.70
12,	1.00	0.90	1.30	2.35	2.15	1.30	1.50	0.90	1.30	1.80	1.65	0.55
13,	1.00	0.90	1.20	2.00	3.25	1.30	1.50	0.90	1.30	1.70	1.50	0.50
14,	1.00	0.90	*1.20	1.90	3.30	1.30	1.40	0.90	1.65	1.60	1.40	0.50
15,	1.00	0.90	1.20	1.75	5.00	1.40	1.35	0.90	1.65	1.40	1.30	0.50
16,	1.00	1.00	1.20	1.70	4.95	1.50	1.30	0.90	1.50	1.40	1.20	0.50
17,	1.00	1.00	1.20	1.60	3.70	1.50	1.30	0.90	1.45	1.35	1.10	0.45
18,	1.05	1.10	1.20	2.35	3.00	1.50	1.25	0.90	1.40	1.40	1.00	0.40
19,	1.05	*1.00	1.20	4.85	2.55	1.50	1.20	0.90	1.35	1.35	1.00	1.30
20,	1.10	1.00	1.20	3.95	2.30	1.50	1.20	0.90	1.30	1.30	0.85	1.35
21,	1.00	1.00	1.20	3.05	2.10	1.50	1.20	1.00	1.20	1.35	0.85	1.05
22,	1.00	1.00	1.20	2.55	2.10	1.40	1.20	2.05	1.10	1.90	1.00	1.00
23,	1.00	1.00	1.60	2.35	2.20	1.30	1.10	2.35	1.00	1.55	1.05	0.80
24,	1.00	1.00	2.00	2.15	3.60	1.30	1.10	2.20	0.95	1.40	1.00	0.70
25,	1.00	1.00	1.80	2.00	4.43	1.35	1.05	2.45	0.90	1.30	0.95	0.60
26,	1.00	1.00	1.80	1.90	3.30	1.45	1.00	2.15	0.80	1.20	0.85	0.50
27,	1.00	1.00	1.80	1.90	2.65	1.70	1.00	1.95	0.70	1.25	0.80	0.50
28,	1.00	1.00	1.75	1.90	2.25	1.60	1.00	1.90	0.70	1.05	0.70	0.50
29,	1.00	1.00	1.70	1.90	....	1.55	0.90	1.65	0.70	0.95	0.80	0.70
30,	0.90	1.00	1.70	*1.90	....	1.50	0.90	1.60	0.85	0.90	0.90	0.70
31,	0.90	....	2.25	1.90	....	1.45	....	1.60	....	1.25	0.80	....

Notes.—*River frozen November 19 to December 1, 1914; December 14, 1914, to January 6, 1915; January 30 to February 1, 1915, inclusive. †Maximum 8.0 ft. at 11.20 A. M. ‡Maximum 2.60 ft. at 8 P. M. from hydrograph. Gates up on dam October 1, 1914, to January 6, 1915, except P. M. of October 6, 1914, and A. M. of October 7, 1914.

SUSQUEHANNA BASIN—STATION NO. 15.

CLEARFIELD CREEK AT DIMELING, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge at Dimeling, Clearfield County.

RECORDS AVAILABLE—Discharge complete from October 2, 1913, to September 30, 1915.

DRAINAGE AREA—370 square miles.

GAGE—A standard chain gage, whose elevation of zero is 1,145.556 feet above mean sea level, is located on the upstream side of the bridge and is read twice daily by G. S. Stover.

CHANNEL—The right bank is low and subject to overflow at extreme stages, the left bank is high and not subject to overflow, and the bed is composed of gravel.

REMARKS—Little Clearfield Creek enters about 400 feet upstream.

DISCHARGE MEASUREMENT OF CLEARFIELD CREEK, AT DIMELING, CLEARFIELD COUNTY, PA.

(Drainage area 370 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec. ft.	
11	Sept. 5	Bowen & Wilson, ...	116	3.75	71	Wading measurement.

DISCHARGE TABLE FOR CLEARFIELD CREEK AT DIMELING, CLEARFIELD COUNTY, PA., FROM OCTOBER 2, 1913.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
3.20	20	.40	187	.60	675	.80	1515	8.00	2825
.30	27	.50	212	.70	730	.90	1606	.10	2955
.40	35	.60	240	.80	790	7.00	1700	.20	3090
.50	43	.70	270	.90	850	.10	1795	.30	3230
.60	53	.80	300	6.00	915	.20	1895	.40	3370
.70	65	.90	335	.10	980	.30	1995	.50	3510
.80	78	5.00	375	.20	1045	.40	2105	.60	3660
.90	93	.10	420	.30	1115	.50	2215	.70	3810
4.00	109	.20	465	.40	1185	.60	2330	.80	3970
.10	126	.30	515	.50	1260	.70	2450	.90	4140
.20	144	.40	565	.60	1340	.80	2570	9.00	4320
.30	165	.50	620	.70	1425	.90	2695		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF CLEARFIELD CREEK AT DIMELING. CLEARFIELD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	....	5.31	5.02	5.04	9.63	....	7.39	5.59	4.18	4.14	3.72	3.72
2,	5.52	5.10	4.98	4.90	7.94	....	7.71	5.41	4.07	4.35	3.72	3.64
3,	5.76	4.96	4.97	5.51	7.17	....	7.21	5.29	4.09	4.44	3.70	3.64
4,	5.40	4.89	4.90	*	7.24	....	6.71	5.11	4.18	4.12	3.74	3.60
5,	4.90	4.76	4.82	....	6.99	....	6.25	5.15	5.15	3.99	3.73	3.57
6,	4.56	4.67	4.78	....	6.62	....	6.03	7.02	4.93	3.91	3.73	3.50
7,	4.36	4.56	6.50	....	6.31	....	5.92	6.11	4.69	3.86	4.28	3.40
8,	4.24	4.43	6.29	....	5.94	....	5.84	5.81	4.81	3.83	4.08	3.53
9,	4.18	6.52	5.76	....	5.30	....	6.47	6.01	4.14	3.80	3.92	3.43
10,	4.11	9.22	5.51	....	5.42	....	5.97	5.80	4.08	3.81	3.86	3.32
11,	4.10	7.34	5.49	....	5.86	....	5.79	5.52	4.03	3.78	3.76	3.42
12,	4.20	6.61	5.16	....	*	....	5.57	6.07	3.95	3.74	3.99	3.44
13,	4.56	6.53	5.24	....	....	....	5.49	7.89	3.95	3.83	4.00	3.37
14,	4.25	6.73	5.17	....	....	....	5.41	7.05	3.95	4.30	3.96	3.40
15,	4.11	6.45	5.10	....	....	....	5.37	6.48	3.85	4.28	3.77	3.46
16,	4.00	6.82	4.96	....	....	7.40	9.23	6.09	3.83	4.16	3.65	3.44
17,	3.97	6.31	4.88	....	....	7.79	7.73	5.75	3.83	4.42	3.62	3.36
18,	4.04	5.94	4.86	....	....	8.85	6.94	5.46	3.74	4.50	3.70	3.40
19,	4.45	5.75	4.76	....	....	7.45	6.55	5.81	3.74	4.42	3.58	3.40
20,	7.10	5.62	4.58	....	....	6.73	6.65	5.15	3.71	4.37	3.55	3.40
21,	6.64	5.44	4.62	....	....	6.24	7.04	4.95	3.71	4.34	3.54	3.36
22,	5.92	5.28	4.64	....	....	5.99	6.53	4.81	4.18	4.24	3.68	3.28
23,	5.41	5.14	4.58	....	....	5.73	6.33	4.71	4.74	4.02	3.68	3.31
24,	5.44	5.05	4.68	7.70	....	5.57	6.21	4.63	4.33	3.88	3.52	3.28
25,	7.15	4.90	4.88	8.32	....	5.67	6.05	4.47	4.13	3.84	3.71	3.24
26,	7.72	4.81	4.76	8.20	....	7.45	6.57	4.36	3.99	3.88	3.60	3.32
27,	7.42	4.80	4.59	7.76	....	8.71	6.75	4.35	4.01	3.78	3.52	3.27
28,	6.53	4.75	4.64	7.86	....	9.64	6.35	4.41	5.15	3.82	3.42	3.30
29,	6.16	5.01	4.82	8.12	....	8.65	6.15	4.35	5.29	3.94	3.64	3.30
30,	5.75	5.16	5.38	9.82	....	8.45	5.91	4.27	4.48	3.84	3.79	3.36
31,	5.55	....	5.23	10.23	....	8.12	....	4.32	....	3.73	3.82	....

Note.—*Creek frozen January 4 to 23 and February 12 to March 15, 1914, inclusive.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF CLEARFIELD CREEK AT DIMELING, CLEARFIELD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	3.25	3.40	3.79	....	7.47	5.87	4.74	4.22	5.18	4.59	4.37	4.01
2,	3.24	3.37	4.12	....	9.49	5.59	4.64	4.18	5.29	5.07	4.31	3.92
3,	3.25	3.50	4.14	....	8.35	5.31	4.58	4.16	‡8.04	5.53	4.42	3.83
4,	3.28	3.47	4.10	....	7.59	5.11	4.56	4.18	8.02	5.43	4.70	3.81
5,	3.27	3.38	3.68	....	6.44	5.06	4.52	4.55	6.90	5.08	4.71	3.78
6,	3.19	3.46	3.78	....	6.34	5.01	4.56	4.85	6.26	4.88	4.55	3.98
7,	3.25	3.44	4.00	†10.37	6.04	4.91	5.04	4.88	5.79	4.63	4.37	4.40
8,	3.19	3.42	4.18	9.34	5.85	4.87	5.07	4.74	5.59	5.69	4.35	4.33
9,	3.24	3.44	4.42	7.62	5.73	4.80	5.00	4.90	5.32	§5.93	6.01	4.18
10,	3.32	3.50	4.40	6.60	5.65	4.81	4.90	4.50	5.07	5.31	5.81	4.06
11,	3.52	3.44	4.38	5.85	5.78	4.85	5.04	4.39	4.92	4.71	5.24	3.93
12,	3.94	3.46	4.30	5.66	6.54	4.85	5.11	4.32	4.89	5.37	5.02	3.92
13,	3.90	3.44	4.11	5.90	‖6.49	4.73	5.00	4.19	5.07	5.33	4.90	4.00
14,	3.82	3.50	4.11	5.96	‖6.43	4.87	4.86	4.25	5.09	5.12	4.67	3.97
15,	4.00	3.66	4.12	5.48	‖6.37	4.99	4.74	4.28	4.93	4.93	4.50	4.08
16,	4.02	3.82	4.16	5.24	‖6.31	5.18	4.68	4.30	4.91	4.81	4.37	3.93
17,	3.98	3.93	*	5.30	‖6.25	5.19	4.60	4.32	4.63	4.72	4.27	4.04
18,	3.91	3.92	....	6.21	‖6.19	5.11	4.55	4.72	4.49	4.49	4.16	3.88
19,	3.80	3.64	....	7.84	‖6.13	4.95	4.48	4.65	4.35	4.25	4.01	4.43
20,	3.70	3.71	....	7.02	6.07	4.89	4.51	4.38	4.29	4.16	3.91	4.68
21,	3.66	3.62	....	6.45	6.01	4.89	4.54	4.54	4.22	4.80	4.16	4.45
22,	3.65	3.60	....	5.97	5.97	4.83	4.42	6.85	4.19	5.17	5.18	4.36
23,	3.42	3.50	....	5.62	6.26	4.79	4.36	6.92	4.07	4.82	4.83	4.32
24,	3.36	3.48	....	5.52	8.03	4.90	4.34	6.96	4.10	4.65	4.49	4.22
25,	3.30	3.53	....	5.42	9.01	4.96	4.28	6.50	4.07	4.52	4.30	4.16
26,	3.28	3.46	....	5.36	7.58	5.19	4.28	5.98	4.08	4.30	4.23	4.10
27,	3.30	3.45	....	5.31	6.63	5.22	4.26	5.82	4.03	4.17	4.10	4.12
28,	3.24	3.56	....	5.23	6.05	5.09	4.28	5.48	3.99	4.15	4.03	4.10
29,	3.32	3.56	....	5.22	....	4.95	4.24	5.26	3.93	4.15	4.05	4.02
30,	3.43	3.61	....	6.91	....	4.89	4.23	5.72	4.13	4.29	4.11	3.88
31,	3.44	....	....	7.26	....	4.77	....	5.57	....	4.53	4.08	....

Notes.—*Creek frozen December 17, 1914, to January 6, 1915, inclusive. †Maximum 11.90 ft. at 7.30 A. M. ‡Maximum 8.93 ft. at 10 P. M. from hydrograph. §Maximum 6.85 ft. at 4 P. M. ‖Interpolated.

DAILY DISCHARGE, IN SECOND-FEET, OF CLEARFIELD CREEK AT DIMELING, CLEARFIELD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	....	520	384	393	5400	392	2090	670	140	133	68	68
2,	631	420	367	335	2750	392	2460	570	121	176	68	58
3,	766	359	363	626	1860	392	1900	510	124	197	65	58
4,	565	332	335	*266	1940	393	1430	424	131	130	70	53
5,	335	288	307	266	1690	392	1080	442	442	107	69	50
6,	229	261	294	266	1360	392	934	1720	347	95	69	43
7,	178	229	1260	266	1120	392	863	986	267	87	161	35
8,	152	194	1110	266	876	392	814	796	167	82	123	46
9,	140	1280	766	266	615	392	1240	922	133	78	96	37
10,	128	4700	626	266	576	392	896	790	123	80	87	29
11,	126	2040	614	266	545	392	784	631	114	75	73	37
12,	144	1350	447	266	*614	392	658	960	101	70	107	38
13,	229	1280	485	266	614	392	614	2680	101	82	109	33
14,	154	1450	452	266	614	392	670	1750	101	165	103	35
15,	128	1220	420	266	614	332	550	1240	86	161	74	40
16,	109	1530	359	266	614	2100	4720	974	82	137	59	38
17,	104	1120	328	266	614	2560	2490	760	82	192	55	32
18,	116	876	321	266	614	4060	1640	598	70	212	65	35
19,	200	760	288	266	614	2160	1300	520	70	192	51	35
20,	1800	686	234	266	614	1450	1380	443	66	180	48	35
21,	1370	587	246	266	614	1070	1740	355	66	174	47	32
22,	863	506	252	266	614	908	1280	304	140	152	63	26
23,	570	438	234	266	614	748	1140	273	282	112	63	28
24,	587	398	264	2450	614	658	1050	249	172	90	45	26
25,	1840	335	328	3260	614	714	948	204	131	84	66	23
26,	2470	304	288	3090	614	2160	1320	178	107	82	53	29
27,	2130	300	237	2520	614	3830	1470	176	111	75	45	25
28,	1280	285	252	2640	614	5420	1150	190	442	81	37	27
29,	1020	380	307	2980	....	3740	1010	176	510	99	58	27
30,	760	447	555	5720	....	3440	856	159	194	84	77	32
31,	648	....	480	6420	....	2980	....	169	....	69	81	....

Notes.—*Creek frozen January 4 to 23, February 12 to March 15, 1914, inclusive, and discharge estimated from West Branch Susquehanna River at Bower. Discharges above 4320 sec.-ft. are estimated.

DAILY DISCHARGE, IN SECOND-FEET, OF CLEARFIELD CREEK AT DIMELING, CLEARFIELD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	24	35	77	155	2180	832	282	148	456	237	180	111
2,	23	33	130	155	5140	670	252	140	510	406	167	96
3,	24	43	133	155	3300	520	234	137	‡2880	636	192	82
4,	26	41	126	155	2320	424	229	140	2850	582	270	80
5,	25	33	63	155	1220	402	218	226	1600	411	273	75
6,	19	40	75	155	1140	380	229	318	1090	328	226	106
7,	24	38	109	†6700	941	339	393	328	784	249	180	187
8,	19	37	140	4900	820	324	406	282	670	724	176	172
9,	23	38	192	2350	748	300	375	335	525	§870	922	140
10,	29	43	187	1349	702	304	335	212	406	520	796	119
11,	45	38	183	920	778	318	393	185	343	273	485	98
12,	99	40	165	703	1290	318	424	169	332	550	384	96
13,	93	38	128	850	1250	279	375	142	406	530	335	109
14,	81	43	128	889	1210	324	321	154	416	429	261	104
15,	109	60	130	669	1160	371	282	161	347	347	212	123
16,	112	81	137	485	1120	456	264	165	339	304	180	98
17,	106	98	*100	515	1080	460	240	169	249	276	159	116
18,	95	96	100	1650	1040	424	226	276	210	210	137	90
19,	78	58	100	2020	1000	355	207	255	176	154	111	194
20,	65	66	100	1720	960	332	215	183	163	137	95	264
21,	60	55	100	1220	922	332	223	223	148	300	137	200
22,	59	53	100	896	896	310	192	1560	142	452	456	178
23,	37	43	100	686	1090	297	178	1620	121	307	310	169
24,	32	41	100	651	2860	335	174	1660	126	255	210	148
25,	27	46	100	576	4340	355	161	1260	121	218	165	137
26,	26	40	100	545	2310	460	161	902	114	165	150	126
27,	27	59	100	529	1370	475	157	802	114	139	126	130
28,	23	49	100	475	948	416	161	609	107	135	114	126
29,	29	49	100	475	....	355	152	495	98	135	118	112
30,	37	54	100	1510	....	332	150	742	131	163	128	90
31,	38	....	100	1930	....	291	....	658	....	220	114	....

Notes.—*Creek frozen December 17, 1914, to January 6, 1915, inclusive, and discharge estimated from West Branch Susquehanna River at Bower. †Maximum=9470 sec.-ft. ‡Maximum=4190 sec.-ft. §Maximum=1560 sec.-ft. Discharges above 4320 sec.-ft. are estimated.

ESTIMATED MONTHLY DISCHARGE OF CLEARFIELD CREEK AT DIMELING, CLEARFIELD COUNTY, PA.

(Drainage area 370 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
a. 1913.					
October 2-31,	2470	104	659	1.78	1.99
November,	††4700	194	829	2.24	2.50
December,	1260	234	426	1.15	1.33
1914.					
January,	††6420	....	1150	3.11	3.58
February,	††5400	....	1040	2.81	2.93
March,	††5420	....	1420	3.84	4.42
April,	††4720	550	1350	3.65	4.07
May,	2680	159	672	1.82	2.09
June,	510	66	167	0.45	0.50
July,	212	69	120	0.32	0.37
August,	161	37	73	0.20	0.23
September,	68	23	37	0.10	0.11
The year,	††6420	23	662	1.79	24.12
b. 1914.					
October,	112	19	49	0.13	0.15
November,	98	33	49	0.13	0.14
December,	192	62	116	0.31	0.36
1915.					
January,	††9470	....	1160	3.14	3.62
February,	††5140	702	1580	4.27	4.45
March,	832	279	390	1.05	1.21
April,	424	150	254	0.68	0.76
May,	1660	137	473	1.28	1.48
June,	4190	98	532	1.44	1.61
July,	1560	135	344	0.93	1.07
August,	922	95	251	0.68	0.78
September,	264	75	129	0.35	0.39
The year,	††9470	19	444	1.20	16.02

Notes.—a. Creek frozen January 4 to 23, inclusive, February 12 to March 15, 1914, inclusive, and discharge estimated from West Branch Susquehanna River at Bower.

b. Creek frozen December 17, 1914, to January 6, 1915, inclusive, and discharge estimated from West Branch Susquehanna River at Bower.

††Estimated.

SUSQUEHANNA BASIN—STATION NO. 16.

MOSHANNON CREEK AT WINBURNE, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge at Winburne, Clearfield County.

RECORDS AVAILABLE—Discharge measurements and gage heights from October 3, 1913, to September 30, 1915.

DRAINAGE AREA—150 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge and is read twice daily by W. M. Hoover.

CHANNEL—The right bank is high, the left bank is low and subject to overflow at extreme stages, and the bed is composed of gravel.

DISCHARGE MEASUREMENT OF MOSHANNON CREEK AT WINBURNE, CLEARFIELD COUNTY, PA.

(Drainage area 150 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec. ft.	
9	Sept. 4	Bowen & Wilson, ...	68	0.65	62	0.6 method.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF MOSHANNON CREEK AT WINBURNE, CLEARFIELD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.44	0.43	0.57	1.62	1.35	1.82	0.90	0.80	1.12	1.08	0.69	0.69
2,	0.44	0.41	0.62	1.75	2.45	1.62	0.86	0.80	1.16	0.97	0.87	0.68
3,	0.44	0.41	0.65	1.78	2.80	1.46	0.85	0.80	1.64	0.98	0.89	0.65
4,	0.44	0.41	0.58	1.69	1.30	1.31	0.85	0.75	1.97	0.95	0.91	0.65
5,	0.44	0.41	0.56	1.70	1.38	1.16	0.85	0.78	1.94	0.93	0.81	0.64
6,	0.44	0.41	0.60	1.80	1.54	1.20	0.85	0.76	1.76	0.93	0.87	0.64
7,	0.44	0.41	0.61	2.65	1.50	1.15	0.85	0.75	1.52	0.89	0.80	0.64
8,	0.44	0.41	0.66	3.44	1.41	1.04	0.85	0.75	1.38	0.97	0.79	0.64
9,	0.44	0.46	0.67	6.90	1.30	0.96	0.85	0.75	1.35	1.05	0.82	0.64
10,	0.44	0.46	0.71	5.95	1.19	0.95	0.85	0.75	1.16	0.97	0.78	0.64
11,	0.58	0.45	0.71	5.60	1.21	0.94	0.85	0.73	1.11	0.91	0.77	0.64
12,	0.61	0.45	0.69	5.26	1.38	0.95	0.85	0.71	1.12	1.01	0.83	0.64
13,	0.59	0.45	0.67	5.08	1.76	0.90	0.86	0.70	1.13	0.98	0.80	0.64
14,	0.56	0.45	0.66	5.04	1.99	0.90	0.85	0.70	1.10	0.93	0.76	0.64
15,	0.55	0.53	0.66	4.08	2.60	0.90	0.80	0.70	1.01	0.89	0.74	0.64
16,	0.63	0.64	*0.76	4.30	3.65	0.89	0.80	0.70	1.00	0.89	0.74	0.64
17,	0.67	0.66	0.76	4.30	3.14	0.90	0.80	0.70	0.98	0.89	0.74	0.64
18,	0.65	0.66	0.76	5.36	2.58	0.90	0.80	0.76	0.94	0.89	0.74	0.64
19,	0.62	0.63	0.76	6.20	2.14	0.90	0.80	0.70	0.90	0.89	0.74	0.64
20,	0.61	0.61	0.76	3.28	1.86	0.90	0.80	0.70	0.88	0.81	0.74	0.64
21,	0.61	0.55	0.76	2.68	1.68	0.90	0.80	0.74	0.82	0.78	0.84	0.66
22,	0.58	0.56	1.11	2.24	1.58	0.90	0.80	1.38	0.80	0.74	1.14	0.64
23,	0.51	0.56	1.11	1.90	1.72	0.90	0.80	1.37	0.80	0.74	1.05	0.63
24,	0.50	0.56	1.11	2.03	1.92	0.90	0.80	1.32	0.80	0.71	0.98	0.61
25,	0.46	0.56	1.31	2.04	3.54	0.90	0.80	1.32	0.72	0.69	0.87	0.59
26,	0.42	0.53	1.31	2.12	3.08	0.90	0.80	1.30	0.68	0.69	0.81	0.61
27,	0.41	0.51	1.31	1.84	2.72	0.90	0.80	1.28	0.64	0.69	0.77	0.63
28,	0.41	0.51	1.31	1.30	2.52	0.86	0.80	1.22	0.60	0.73	0.73	0.60
29,	0.41	0.51	1.37	1.08	....	0.86	0.80	1.15	0.69	0.69	0.73	0.59
30,	0.46	0.49	1.43	1.02	....	0.85	0.80	1.10	0.74	0.69	0.73	0.59
31,	0.43	....	1.47	1.20	....	0.85	....	1.08	....	0.89	0.69	....

Note.—*Creek frozen December 16, 1914, to January 19, 1915, inclusive; ice jammed under gage January 9 to 19, 1915, inclusive.

SUSQUEHANNA BASIN--STATION NO. 17.

DRIFTWOOD BRANCH SINNEMAHONING CREEK AT STERLING RUN, PA.

DESCRIPTION OF STATION.

LOCATION—At three span, steel, through-truss, highway bridge, about 9 miles above the mouth, at Sterling Run, Cameron County.

RECORDS AVAILABLE—Discharge measurements and gage heights from September 30, 1913, to September 30, 1915.

DRAINAGE AREA—270 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge and is read twice daily by Thomas Eddy.

CHANNEL—Both banks are low and subject to overflow at extreme stages, and the bed is composed of gravel.

REMARKS—Sterling Run enters the creek about 700 feet below the bridge.

DISCHARGE MEASUREMENTS OF DRIFTWOOD BRANCH SINNEMAHONING CREEK AT STERLING RUN, CAMERON COUNTY, PA.

(Drainage area 270 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
			Sq. ft.	Feet.	Sec. ft.	
	1914.					
10	Dec. 11	Gough,	162	1.18	126	Surface method.
	1915.					
11	Sept. 3	Bowen & Wilson,	148	1.10	122	Surface and 0.6 method.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF DRIFTWOOD BRANCH SINNEMAHONING CREEK AT STERLING RUN, CAMERON COUNTY, PA.. FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.60	0.68	0.98	2.08	2.80	1.94	1.44	1.32	1.30	1.96	1.11	1.20
2,	0.60	0.68	1.34	2.02	3.25	1.77	1.40	1.22	1.29	2.00	1.42	1.11
3,	0.60	0.66	1.31	2.02	2.45	1.72	1.35	1.20	1.53	2.15	1.82	1.08
4,	0.60	0.66	1.25	2.01	2.18	1.54	1.36	1.18	1.34	2.06	1.75	1.02
5,	0.60	0.64	1.17	2.00	1.88	1.47	1.32	1.42	1.29	1.94	1.66	1.02
6,	0.58	0.64	1.10	1.85	2.00	1.48	1.42	1.42	1.29	1.72	1.54	1.08
7,	0.62	0.80	1.10	†5.23	1.88	1.53	2.02	1.44	1.22	1.56	1.46	1.03
8,	0.61	1.05	1.12	3.34	1.78	1.35	2.26	1.82	1.20	1.58	1.50	1.00
9,	0.60	1.00	1.14	2.58	1.63	1.16	2.39	1.78	1.15	1.90	1.38	0.98
10,	0.61	0.94	1.13	2.24	1.64	1.34	2.60	1.62	1.08	1.88	1.30	0.96
11,	0.63	0.90	1.09	1.86	1.58	1.39	2.69	1.54	1.05	1.94	1.18	0.92
12,	0.61	0.90	1.01	1.99	1.68	1.36	2.50	1.54	1.06	1.82	1.16	0.89
13,	0.78	0.87	0.98	1.86	1.96	1.38	2.22	1.47	1.08	1.51	1.12	0.83
14,	0.78	0.83	1.14	1.60	2.10	1.36	2.02	1.42	1.10	1.44	1.11	0.86
15,	0.80	0.82	1.12	1.62	3.23	1.44	1.74	1.39	1.07	1.32	1.16	1.04
16,	0.96	1.18	1.10	1.84	3.20	1.48	1.66	1.38	1.04	1.44	1.20	1.00
17,	0.94	1.22	*1.11	1.54	2.70	1.50	1.55	1.38	1.00	1.76	1.11	0.88
18,	0.90	1.16	1.10	1.90	2.43	1.44	1.44	1.32	0.96	1.61	1.10	0.88
19,	0.85	1.00	1.14	3.45	2.16	1.50	1.41	1.29	0.92	1.50	1.01	0.88
20,	0.78	1.02	1.24	3.08	2.11	1.36	1.42	1.30	0.95	1.42	1.00	1.52
21,	0.76	0.98	1.50	2.18	2.10	1.89	1.35	1.44	0.91	1.42	1.10	1.32
22,	0.75	0.96	1.52	1.93	2.09	1.42	1.28	3.32	1.08	1.39	2.01	1.26
23,	0.74	0.93	1.49	2.00	2.10	1.47	1.23	2.80	1.10	1.39	1.98	1.22
24,	0.75	0.92	1.49	2.06	3.74	1.51	1.20	2.37	1.02	1.35	1.89	1.16
25,	0.75	0.86	1.49	1.84	‡4.53	1.62	1.13	2.06	0.99	1.22	1.68	1.11
26,	0.73	0.85	1.48	1.60	3.44	1.78	1.12	1.74	0.98	1.11	1.46	1.08
27,	0.72	0.84	1.48	1.59	2.78	1.74	1.12	1.66	0.90	1.34	1.37	1.05
28,	0.72	0.84	1.49	1.46	2.22	1.70	1.16	1.50	0.82	1.35	1.42	1.04
29,	0.71	0.83	1.52	1.40	....	1.64	1.24	1.50	0.90	1.38	1.36	0.93
30,	0.70	0.88	2.20	1.35	....	1.60	1.21	1.36	1.14	1.23	1.32	0.94
31,	0.71	....	2.49	1.59	....	1.52	....	1.33	....	1.16	1.30	....

Notes.—*Creek frozen December 17, 1914, to January 6, 1915, inclusive. †Maximum 5.70 ft. at 12.45 P. M. ‡Maximum 4.97 ft. at 8.45 A. M.

SUSQUEHANNA BASIN—STATION NO. 18.

KETTLE CREEK AT LEIDY, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge at Leidy, Clinton County, 11 miles above the mouth of the creek.

RECORDS AVAILABLE—Discharge measurements and gage heights from December 2, 1913, to September 30, 1915.

DRAINAGE AREA—202 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the upstream side of the bridge and is read twice daily by C. W. Sliker.

CHANNEL—The right bank is high and steep, the left bank is low with gradual slopes but not subject to overflow, and the bed is composed of clean gravel.

DISCHARGE MEASUREMENT OF KETTLE CREEK AT LEIDY, CLINTON COUNTY, PA.

(Drainage area 202 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec. ft.	
4	Sept. 2	Bowen & Wilson, ...	155	2.08	95	0.6 method.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF KETTLE CREEK AT LEIDY, CLINTON COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.48	1.68	2.11	3.35	3.75	3.45	2.77	2.50	2.38	2.87	2.20	2.17
2,	1.47	1.66	2.21	3.33	4.26	3.26	2.69	2.47	2.39	2.63	‡3.22	2.11
3,	1.46	1.65	2.15	3.30	3.88	3.05	2.63	2.38	2.55	3.53	3.86	2.07
4,	1.46	1.63	2.11	3.30	3.50	2.87	2.65	2.46	2.45	3.29	3.13	2.05
5,	1.46	1.63	2.09	3.28	3.15	2.78	2.67	2.55	2.40	3.11	2.83	2.03
6,	1.45	1.62	2.07	3.28	3.25	2.71	2.86	2.60	2.33	2.87	2.65	2.01
7,	1.45	1.61	2.21	7.35	3.18	2.65	3.71	2.61	2.29	2.76	2.50	2.19
8,	1.44	1.62	2.30	5.50	2.92	2.59	3.89	2.93	2.22	3.16	2.45	2.19
9,	1.44	1.73	2.27	4.50	2.82	2.51	4.26	2.93	2.20	3.93	2.40	2.15
10,	2.51	1.75	2.23	4.68	2.75	2.46	4.56	2.83	2.17	3.66	2.31	2.10
11,	2.31	1.71	2.19	3.35	2.70	2.47	4.83	2.80	2.14	3.51	2.21	2.07
12,	1.85	1.71	2.15	3.43	2.88	2.39	4.41	2.73	2.13	3.24	2.21	2.01
13,	1.65	1.68	2.12	3.26	3.12	2.33	3.89	2.65	2.10	2.99	2.17	2.00
14,	1.65	1.65	*3.26	3.06	3.14	2.33	3.49	2.59	2.04	2.72	2.12	1.99
15,	1.88	1.76	3.19	2.88	4.30	2.45	3.26	2.51	2.00	2.67	2.08	1.98
16,	1.89	2.73	3.11	2.71	4.88	2.59	3.03	2.49	1.95	2.65	2.06	1.97
17,	2.03	2.59	3.09	2.72	4.22	2.61	2.89	2.53	1.95	2.62	2.04	2.09
18,	1.93	2.47	3.08	3.35	3.75	2.61	2.77	2.47	1.92	2.67	2.01	2.13
19,	1.92	2.39	3.07	4.92	3.64	2.60	2.71	2.43	1.95	2.51	2.01	2.63
20,	1.89	2.30	3.09	4.52	3.45	2.56	2.63	2.39	1.91	2.49	1.99	2.46
21,	1.83	2.27	3.05	4.00	3.55	2.55	2.53	2.55	1.89	2.39	1.99	2.33
22,	1.79	2.25	3.03	3.60	3.58	2.59	2.43	3.42	2.15	2.33	3.10	2.30
23,	1.76	2.22	3.10	3.35	3.65	2.65	2.37	3.43	2.33	2.27	3.16	2.23
24,	1.75	2.19	3.11	3.20	5.02	2.76	2.33	3.31	2.19	2.20	3.09	2.17
25,	1.71	2.19	3.08	3.06	†6.48	2.95	2.29	3.17	2.03	2.13	2.86	2.10
26,	1.70	2.15	3.03	2.96	5.06	3.11	2.27	3.01	1.90	2.06	2.69	2.07
27,	1.69	2.12	3.01	2.88	4.20	3.19	2.24	2.86	1.86	2.39	2.53	2.08
28,	1.69	2.08	2.97	2.82	3.72	3.20	2.31	2.71	1.83	2.13	2.42	2.00
29,	1.67	2.03	2.96	2.78	....	3.13	2.51	2.65	1.80	2.05	2.37	1.97
30,	1.71	1.98	3.56	2.58	....	2.96	2.49	2.53	2.13	2.07	2.29	1.96
31,	1.70	....	3.56	2.42	....	2.87	....	2.44	....	2.32	2.23	....

Notes.—*Creek frozen December 14, 1914, to January 6, 1915, inclusive. †Maximum 7.20 ft. at 2 A. M. from hydrograph. ‡Maximum 5.01 ft. at 7.30 P. M.

SUSQUEHANNA BASIN—STATION NO. 19.

WEST BRANCH SUSQUEHANNA RIVER AT RENOVO, PA.

DESCRIPTION OF STATION.

LOCATION—At three span, steel, through-truss, highway bridge at Eighth Street, Renovo, Clinton County.

RECORDS AVAILABLE—Discharge complete from January 1, 1908, to September 30, 1915. For other records on this river see West Branch Susquehanna River at Bower, West Branch Susquehanna River at Clearfield, West Branch Susquehanna River at Williamsport, and West Branch Susquehanna River at Lewisburg; also West Branch Susquehanna River at Allenwood in the 1910-11 Report of the Water Supply Commission.

DRAINAGE AREA—2,990 square miles.

GAGE—A standard chain gage, whose elevation of zero is 637.4 feet above mean sea level, is located on the upstream side of the bridge, and is read twice daily by Chidwick Walsh.

CHANNEL—Both banks are high and not subject to overflow, and the bed is composed of rock.

DISCHARGE MEASUREMENT OF WEST BRANCH SUSQUEHANNA RIVER AT RENOVO, CLINTON COUNTY, PA.

(Drainage area 2,990 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec. ft.	
23	Sept. 2	Bowen & Wilson, ...	1913	0.80	1488	0.6 method.

DISCHARGE TABLE FOR WEST BRANCH SUSQUEHANNA RIVER AT RENOVO, CLINTON COUNTY, PA., FROM JANUARY 1, 1908.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
—1.10	80	.80	3230	.70	11670	.60	26850	.50	47750
—1.00	100	.90	3420	.80	12060	.70	27500	.60	48600
—0.90	125	2.00	3620	.90	12460	.80	28150	.70	49500
—0.80	155	.10	3820	5.00	12860	.90	28800	.80	50400
—0.70	190	.20	4020	.10	13260	8.00	29450	.90	51300
—0.60	230	.30	4240	.20	13660	.10	30100	11.00	52250
—0.50	280	.40	4460	.30	14100	.20	30750	.10	53200
—0.40	340	.50	4690	.40	14550	.30	31400	.20	54150
—0.30	400	.60	4930	.50	15000	.40	32100	.30	55100
—0.20	470	.70	5180	.60	15500	.50	32800	.40	56050
—0.10	540	.80	5440	.70	16000	.60	33500	.50	57000
0.00	620	.90	5710	80	16500	.70	34200	.60	58000
.10	700	3.00	5980	.90	17000	.80	34900	.70	59000
.20	790	.10	6260	6.00	17500	.90	35600	.80	60000
.30	890	.20	6540	.10	18000	9.00	36300	.90	61000
.40	1000	.30	6840	.20	18550	.10	37000	12.00	62000
.50	1120	.40	7140	.30	19100	.20	37700	.10	63000
.60	1250	.50	7440	.40	19660	.30	38450	.20	64100
.70	1390	.60	7760	.50	20225	.40	39300	.30	65200
.80	1530	.70	8080	.60	20800	.50	39950	.40	66300
.90	1680	.80	8400	.70	21400	.60	40700	.50	67400
1.00	1830	.90	8740	.80	22000	.70	41450	.60	68600
.10	1990	4.00	9080	.90	22600	.80	42200	.70	69800
.20	2150	.10	9420	7.00	23200	.90	42950	.80	71000
.30	2320	.20	9780	.10	23800	10.00	43700	.90	72200
.40	2490	.30	10140	.20	24400	.10	44450	13.00	73400
.50	2670	.40	10520	.30	25000	.20	45250		
.60	2850	.50	10900	.40	25600	.30	46050		
.70	3040	.60	11280	.50	26200	.40	46900		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF WEST BRANCH SUSQUEHANNA RIVER AT RENOVO, CLINTON COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	—0.81	—0.54	—0.23	....	3.32	4.33	2.25	1.13	2.39	2.10	1.87	0.86
2,	—0.81	—0.55	0.10	....	7.81	3.77	2.07	1.11	2.17	2.06	1.25	0.77
3,	—0.82	—0.55	0.56	....	7.62	3.28	1.88	1.08	2.74	3.33	2.21	0.60
4,	—0.83	—0.56	0.92	....	5.82	2.87	1.74	1.05	4.82	3.67	2.00	0.48
5,	—0.84	—0.57	0.86	....	4.69	2.61	1.67	1.33	4.20	3.51	2.11	0.41
6,	—0.85	—0.55	0.64	....	4.38	2.49	1.76	1.43	3.61	2.98	2.07	0.46
7,	—0.85	—0.54	0.54	9.46	4.18	2.35	2.75	1.41	3.10	2.51	1.71	0.60
8,	—0.79	—0.53	0.58	†9.21	3.79	2.17	3.43	1.57	2.72	3.20	1.47	0.91
9,	—0.73	—0.51	0.68	6.66	3.30	1.97	3.67	1.78	2.48	5.68	1.38	0.74
10,	—0.73	—0.35	0.75	5.08	2.88	1.94	3.93	1.76	2.18	4.86	2.01	0.62
11,	—0.59	—0.31	0.82	4.08	2.54	1.93	4.33	1.65	1.90	3.78	2.16	0.48
12,	—0.33	—0.37	0.74	3.88	2.68	1.89	4.07	1.48	1.71	3.56	1.73	0.40
13,	—0.27	—0.43	0.64	3.88	3.76	1.81	3.51	1.40	1.62	3.24	1.59	0.30
14,	—0.23	—0.45	*	‖3.45	4.66	1.82	3.03	1.33	1.66	2.65	1.41	0.39
15,	—0.17	—0.45	....	‖3.01	6.76	1.91	2.61	1.20	1.72	2.22	1.26	0.38
16,	0.14	0.56	....	2.58	9.37	2.20	2.31	1.11	1.88	2.12	0.99	0.44
17,	0.07	0.96	....	2.64	7.62	2.41	2.02	1.29	1.60	2.25	0.88	0.31
18,	0.21	0.75	....	3.14	6.10	2.40	1.92	1.45	1.40	2.12	0.81	0.20
19,	0.11	0.46	....	8.19	5.12	2.31	1.77	1.26	1.22	2.00	0.67	1.10
20,	0.04	0.33	....	8.11	4.52	2.19	1.67	1.11	1.12	1.70	0.55	1.71
21,	—0.05	0.23	....	6.36	4.23	2.13	1.58	1.33	0.98	1.54	0.57	1.45
22,	—0.15	0.13	....	5.06	4.24	2.19	1.44	4.72	0.87	1.76	2.35	1.24
23,	—0.27	0.03	....	4.31	4.31	2.21	1.35	5.23	1.03	2.34	3.03	0.98
24,	—0.36	—0.21	....	3.68	6.92	2.26	1.29	4.75	0.88	1.82	2.70	0.72
25,	—0.44	—0.14	....	3.30	11.41	2.37	1.23	4.73	0.76	1.52	2.24	0.60
26,	—0.49	0.03	....	3.01	8.44	2.71	1.15	4.37	0.62	1.32	2.34	0.52
27,	—0.54	—0.04	....	2.78	6.49	2.89	1.10	3.81	0.49	1.42	1.50	0.49
28,	—0.57	—0.17	....	2.58	5.14	2.85	1.15	3.35	0.40	1.32	1.25	0.56
29,	—0.58	—0.25	....	2.20	....	2.71	1.23	3.01	0.36	1.13	1.17	0.42
30,	—0.56	—0.30	....	1.70	....	2.58	1.17	2.75	0.54	1.00	1.27	0.31
31,	—0.50	....	....	1.20	....	2.42	....	2.57	....	0.96	1.01	....

Notes.—*River frozen December 14, 1914, to January 6, 1915, inclusive. †Maximum 13.00 ft. at 2 a. m. from hydrograph. ‖Interpolated.

DAILY DISCHARGE, IN SECOND-FEET, OF WEST BRANCH SUSQUEHANNA RIVER AT RENOVO, CLINTON COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	152	260	449	1200	6900	10200	4130	2040	4440	3820	2440	1620
2,	152	255	700	1200	28200	8300	3760	2010	3960	8740	2240	1490
3,	149	255	1200	1200	27000	6780	3380	1880	5280	6930	4040	1250
4,	146	250	1710	1200	16600	5630	3120	1910	12100	7980	3620	1100
5,	143	245	1620	1200	11600	4960	2980	2370	9780	7470	3840	1010
6,	140	256	1310	1200	10400	4670	3150	2540	7790	5930	3760	1070
7,	140	260	1170	89600	9710	4350	5310	2510	6260	4710	3060	1250
8,	158	265	1220	†37800	8370	3960	7230	2800	5230	6540	2620	1700
9,	180	275	1360	21200	6840	3560	7980	3190	4640	15900	2460	1450
10,	180	370	1460	13200	5660	3500	8840	3150	3980	12800	3640	1280
11,	235	394	1560	9350	4790	3480	10200	2940	3420	8340	3940	1100
12,	382	358	1450	8670	5130	3400	9320	2630	3060	7630	3100	1000
13,	421	322	1310	8670	8270	3250	7470	2490	2890	6660	2830	890
14,	449	310	*867	7290	11500	3270	6060	2370	2960	5060	2510	989
15,	491	310	867	6010	21800	3440	4960	2150	3080	4060	2260	978
16,	736	1200	867	4880	39000	4020	4260	2010	3380	3860	1820	1050
17,	676	1770	867	5030	27000	4430	3660	2300	2850	4130	1650	991
18,	800	1460	867	6370	18000	4460	3460	2580	2490	3860	1540	790
19,	709	1070	867	30700	13300	4260	3170	2240	2180	3620	1350	1990
20,	652	923	867	30200	11000	4000	2980	2010	2020	3040	1180	3060
21,	580	820	867	19400	9890	3880	2810	2370	1800	2740	1210	2580
22,	505	727	867	13100	9920	4000	2560	11700	1640	3150	4350	2220
23,	421	644	867	10200	10200	4040	2400	13800	1880	4330	6060	1800
24,	364	463	777	8020	22700	4150	2300	11900	1650	3270	5180	1420
25,	316	512	777	6840	56100	4390	2200	11800	1470	2710	4110	1250
26,	286	596	777	6010	32400	5210	2070	10400	1280	2350	4330	1150
27,	260	588	777	5390	20200	5680	1990	8430	1110	2530	2670	1110
28,	245	491	777	4880	13400	5580	2070	7080	1000	2350	2240	1200
29,	240	435	777	4020	....	5210	2200	6010	956	2040	2100	1020
30,	250	400	777	3040	....	4880	2100	5310	1170	1830	2270	901
31,	280	....	1200	2150	....	4510	....	4860	....	1770	1850	....

Notes.—*River frozen December 14, 1914, to January 6, 1915, inclusive, and discharge estimated from West Branch Susquehanna River at Williamsport. †Maximum=73400 sec.-ft.

ESTIMATED MONTHLY DISCHARGE OF WEST BRANCH SUSQUEHANNA RIVER AT RENOVO, CLINTON COUNTY, PA.

(Drainage area 2,990 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	800	140	350	0.12	0.14
November,	1770	245	549	0.18	0.20
December,	1710	449	1030	0.34	0.39
1915.					
January,	73400	....	10300	3.44	3.97
February,	56100	4790	16600	5.55	5.78
March,	10200	3250	4690	1.57	1.81
April,	10200	1990	4270	1.43	1.60
May,	13800	1880	4570	1.53	1.76
June,	12100	956	3520	1.18	1.32
July,	15900	1770	4990	1.67	1.92
August,	6060	1180	2910	0.97	1.12
September,	3060	790	1350	0.45	0.50
The year,	73400	140	4590	1.54	20.51

Note.—River frozen December 14, 1914, to January 6, 1915, inclusive, and discharge estimated from West Branch Susquehanna River at Williamsport.

SUSQUEHANNA BASIN—STATION NO. 20.

BALD EAGLE CREEK AT MILESBURG, PA.

DESCRIPTION OF STATION.

LOCATION—At Pennsylvania Railroad Bridge No. 53, over Bald Eagle Creek, 300 yards above the mouth of Spring Creek, at Milesburg, Centre County.

RECORDS AVAILABLE—Discharge complete from February 6, 1911 to September 30, 1915. For other records on this creek see Bald Eagle Creek at Beech Creek.

DRAINAGE AREA—140 square miles.

GAGE—A 10-foot staff gage, whose elevation of zero is arbitrary, is fastened to the downstream side of the pier, and is read twice daily by P. H. Haupt.

CHANNEL—The right bank is high, steep and rocky, while the left bank is low, although the railroad embankment prevents floods from going around the bridge. The bed is composed of gravel and stones.

DISCHARGE MEASUREMENTS OF BALD EAGLE CREEK AT MILESBURG, CENTRE COUNTY, PA.

(Drainage area 140 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec. ft.	
14	Jan. 8	Taylor & Shade, ...	383	2.81	753	0.2, 0.6 and 0.8 method.
15	Sept. 15	Reckord & Gough, ...	51	0.28	24	Wading above bridge.

DISCHARGE TABLE FOR BALD EAGLE CREEK AT MILESBURG, CENTRE COUNTY, PA., FROM JANUARY 1, 1914.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
—.20	1	.90	75	2.00	375	.10	1110	.20	2580
—.10	2	1.00	88	.10	420	.20	1220	.30	2740
0.00	3	.10	105	.20	470	.30	1340	.40	2900
.10	5	.20	125	.30	525	.40	1460	.50	3060
.20	10	.30	145	.40	580	.50	1590	.60	3220
.30	15	.40	170	.50	640	.60	1720	.70	3390
.40	22	.50	195	.60	700	.70	1850	.80	3560
.50	30	.60	225	.70	770	.80	1990	.90	3730
.60	40	.70	260	.80	840	.90	2130	5.00	3900
.70	50	.80	295	.90	920	4.00	2280		
.80	62	.90	335	3.00	1010	.10	2430		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF BALD EAGLE CREEK AT MILESBURG, CENTRE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	—0.15	0.05	0.06	....	2.05	1.60	0.98	0.52	1.06	1.74	0.56	0.52
2,	—0.15	0.02	0.22	....	3.45	1.44	0.94	0.48	1.19	1.72	1.38	0.42
3,	—0.15	0.01	0.32	....	2.32	1.38	0.90	0.44	4.15	1.46	2.12	0.35
4,	—0.15	0.00	0.22	....	1.86	1.28	0.86	0.64	3.10	1.32	1.46	0.28
5,	—0.15	0.00	0.14	....	1.65	1.18	0.80	1.00	2.46	1.36	1.32	0.22
6,	—0.15	0.00	0.15	....	1.70	1.14	1.08	0.78	1.80	1.21	1.06	0.35
7,	0.00	0.00	0.36	†4.55	1.65	1.16	1.44	0.70	1.54	1.12	0.92	0.52
8,	0.00	0.01	0.61	2.78	1.55	1.15	1.30	0.66	1.30	1.38	0.86	0.48
9,	0.05	0.10	0.82	1.86	1.41	1.20	1.15	0.62	1.14	1.51	1.10	0.38
10,	0.05	0.10	0.68	1.55	1.28	1.32	1.01	0.58	1.06	1.15	0.94	0.32
11,	0.15	0.10	0.65	1.38	1.25	1.40	1.00	0.55	0.92	1.10	0.85	0.22
12,	0.13	0.10	0.65	1.48	1.68	1.46	0.86	0.55	0.85	1.22	1.16	0.16
13,	0.12	0.10	0.67	1.82	1.96	1.52	0.72	0.62	0.76	1.21	0.92	0.25
14,	0.15	0.10	0.65	1.71	2.15	1.56	0.62	0.56	0.74	1.08	0.74	0.34
15,	0.17	0.12	*	1.56	4.35	1.62	0.60	0.54	0.70	1.02	0.64	0.28
16,	0.28	1.10	....	1.44	3.52	1.70	0.63	0.50	0.66	1.08	0.58	0.22
17,	0.35	0.94	....	1.42	2.65	1.62	0.66	0.66	0.58	0.95	0.54	0.21
18,	0.32	0.60	....	2.42	2.29	1.48	0.65	0.64	0.52	0.76	0.48	0.22
19,	0.22	0.38	....	3.85	2.08	1.30	0.60	0.60	0.50	0.65	0.44	0.42
20,	0.13	0.30	....	2.92	2.02	1.35	0.60	0.56	0.48	0.58	0.38	0.45
21,	0.13	0.30	....	2.02	2.12	1.32	0.60	0.80	0.46	0.96	0.62	0.35
22,	0.12	0.30	....	1.74	2.24	1.32	0.60	2.42	0.45	0.86	1.45	0.25
23,	0.01	0.30	....	1.62	2.86	1.40	0.56	2.10	0.43	0.62	0.92	0.16
24,	0.01	0.30	....	1.52	‡5.27	1.48	0.55	2.20	0.40	0.56	0.66	0.18
25,	0.01	0.30	....	1.39	4.60	1.46	0.54	2.00	0.36	0.52	0.65	0.20
26,	0.00	0.26	....	1.25	2.92	1.54	0.50	1.75	0.34	0.63	0.55	0.20
27,	0.00	0.18	....	1.18	2.38	1.52	0.50	1.54	0.32	0.55	0.46	0.22
28,	0.00	0.12	....	1.12	1.90	1.42	0.52	1.30	0.30	0.50	0.60	0.20
29,	0.00	0.08	....	1.02	....	1.31	0.60	1.17	0.27	0.46	0.73	0.22
30,	0.10	0.05	....	0.95	....	1.18	0.56	1.22	0.71	0.50	0.75	0.22
31,	0.10	....	....	0.95	....	1.04	....	1.24	....	0.50	0.62	....

Notes.—*Creek frozen December 15, 1914, to January 6, 1915, inclusive. †Maximum 5.80 ft. at 10 A. M. ‡Maximum 6.20 ft. at 6 P. M.

DAILY DISCHARGE, IN SECOND-FEET, OF BALD EAGLE CREEK AT MILESBURG, CENTRE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	2	4	4	41	398	225	85	32	98	274	36	32
2,	2	3	11	41	1520	180	80	28	123	267	165	24
3,	2	3	16	41	536	165	75	25	2500	185	430	18
4,	2	3	11	41	319	141	70	44	1110	150	185	14
5,	2	3	7	41	242	121	62	88	616	160	150	11
6,	2	3	8	41	260	113	102	60	295	127	98	18
7,	3	3	19	†3140	242	117	180	50	207	109	78	32
8,	3	3	41	826	210	115	145	46	145	165	70	28
9,	4	5	65	319	172	125	115	42	113	198	105	21
10,	4	5	48	210	141	150	90	38	88	115	80	16
11,	8	5	45	165	135	170	88	35	78	106	68	11
12,	6	5	45	190	253	182	70	35	68	129	117	8
13,	6	5	47	303	359	201	52	42	57	127	78	12
14,	8	5	45	264	445	213	42	36	55	102	55	18
15,	8	6	*34	213	2820	232	40	34	50	91	44	14
16,	14	105	34	180	1620	260	42	37	46	102	38	11
17,	18	80	34	175	735	232	46	46	38	82	34	10
18,	16	40	34	592	520	190	45	44	32	57	28	11
19,	11	21	34	2060	411	145	40	40	30	45	25	24
20,	6	15	34	938	384	158	40	36	28	38	21	26
21,	6	15	25	384	430	150	40	62	27	83	42	18
22,	6	15	25	274	492	150	40	592	26	70	182	12
23,	4	15	25	232	558	170	36	420	24	42	78	8
24,	3	15	25	201	‡4360	190	35	470	22	36	46	9
25,	3	15	25	168	3220	185	34	375	19	32	45	10
26,	3	13	25	136	938	207	30	278	18	42	35	10
27,	3	9	25	121	569	201	30	207	16	35	27	11
28,	3	6	25	109	335	175	32	145	15	30	40	10
29,	3	5	45	91	....	148	40	119	14	27	54	11
30,	5	4	45	82	....	121	36	129	51	30	56	11
31,	5	....	45	82	....	95	....	133	....	30	42	....

Notes.—*Creek frozen December 15, 1914, to January 6, 1915, inclusive, and discharge estimated from Lycoming Creek near Trout Run. †Maximum=5300 sec.-ft. ‡Maximum=6140 sec.-ft. Discharges above 3900 sec.-ft. are estimated.

ESTIMATED MONTHLY DISCHARGE OF BALD EAGLE CREEK AT MILESBURG, CENTRE COUNTY, PA.

(Drainage area 140 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	18	2	6	0.04	0.05
November,	105	2	14	0.10	0.11
December,	....	....	31	0.22	0.26
1915.					
January,	5300	....	377	2.69	3.10
February,	††6110	135	808	5.77	6.01
March,	260	95	169	1.21	1.40
April,	180	30	62	0.44	0.49
May,	592	25	121	0.86	0.99
June,	2500	14	200	1.43	1.60
July,	274	27	100	0.71	0.82
August,	430	21	82	0.59	0.68
September,	32	8	16	0.11	0.12
The year,	††6110	2	166	1.18	15.63

Notes.—Creek frozen December 15, 1914, to January 6, 1915, inclusive, and discharge estimated from Lycoming Creek near Trout Run. ††Estimated.

SUSQUEHANNA BASIN—STATION NO. 21.

SPRING CREEK NEAR BELLEFONTE, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge one mile below Bellefonte, Centre County.

RECORDS AVAILABLE—Discharge complete from February 7, 1911, to September 11, 1915, and gage heights from September 12 to September 30, 1915.

DRAINAGE AREA—145 square miles.

GAGE—A staff gage, whose elevation of zero is arbitrary, is located on the downstream side of the left abutment and is read twice daily by J. H. Oliger.

CHANNEL—Both banks are flat and overflow during extreme stages, and the bed is composed of gravel and stone.

REMARKS—There is a canal about 300 feet east of the creek proper, which carries a small part of the flow of the stream, most of which is leakage through the head-gates. A mean daily discharge of 6 second-feet is added for the canal to the daily discharge of the creek for the entire year.

DISCHARGE TABLE FOR SPRING CREEK NEAR BELLEFONTE, CENTRE COUNTY, PA., FROM FEBRUARY 7, 1911, TO SEPTEMBER 12, 1915.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
1.00	87	.70	215	.40	445	.10	800	.80	1380
.10	101	.80	240	.50	485	.20	870	.90	1480
.20	116	.90	270	.60	530	.30	940	4.00	1590
.30	132	2.00	300	.70	575	.40	1010		
.40	150	.10	335	.80	625	.50	1090		
.50	170	.20	370	.90	680	.60	1180		
.60	192	.30	405	3.00	740	.70	1280		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF SPRING CREEK NEAR BELLEFONTE, CENTRE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.50	1.50	1.52	1.42	1.80	2.48	1.72	1.62	1.68	1.81	1.53	1.53
2,	1.50	1.48	1.52	1.48	2.48	2.28	1.74	1.62	1.83	1.66	1.66	1.50
3,	1.51	1.54	1.64	1.42	2.25	2.36	1.75	1.60	2.15	1.74	1.74	1.50
4,	1.48	1.56	1.72	1.46	2.12	2.32	1.74	1.66	2.12	1.72	1.59	1.50
5,	1.50	1.52	1.62	1.50	2.06	2.25	1.70	1.66	2.06	1.81	1.58	1.50
6,	1.50	1.50	1.45	1.46	2.02	2.14	1.67	1.60	2.01	1.78	1.58	1.51
7,	1.55	1.54	1.56	2.38	1.91	2.10	1.67	1.61	1.94	1.74	1.55	1.50
8,	1.51	1.52	1.58	1.98	1.90	2.05	1.68	1.64	1.88	1.74	1.58	1.50
9,	1.54	1.55	1.68	1.78	1.86	2.04	1.61	1.60	1.81	1.76	1.74	1.50
10,	1.54	1.54	1.75	1.66	1.85	2.10	1.67	1.60	1.78	1.68	1.61	1.50
11,	1.52	1.51	1.61	1.65	1.85	2.50	1.68	1.60	1.71	1.69	1.59	1.56
12,	1.50	1.56	1.50	1.85	1.91	2.00	1.74	1.65	1.68	1.70	1.58	**1.85
13,	1.50	1.56	1.50	1.81	1.95	1.96	1.68	1.62	1.71	1.72	1.57	1.96
14,	1.52	1.54	1.60	1.78	1.88	1.95	1.67	1.57	1.70	1.66	1.55	2.10
15,	1.58	1.50	1.60	1.71	3.82	2.05	1.67	1.58	1.68	1.66	1.55	2.08
16,	1.60	1.58	1.58	1.74	3.35	1.91	1.70	1.61	1.65	1.85	1.55	2.05
17,	1.61	1.70	1.52	1.71	3.01	1.90	1.67	1.61	1.64	1.74	1.54	2.08
18,	1.51	1.70	1.40	1.94	2.80	1.92	1.67	1.58	1.60	1.71	1.52	2.11
19,	1.50	1.68	1.48	2.35	2.65	1.85	1.66	1.56	1.58	1.70	1.52	2.10
20,	1.48	1.66	1.48	2.22	2.58	1.85	1.63	1.55	1.60	1.68	1.52	2.05
21,	1.50	1.62	1.50	2.06	2.52	1.82	1.61	1.74	1.56	1.69	1.57	2.12
22,	1.52	1.52	1.46	1.90	2.56	1.86	1.61	1.90	1.55	1.66	1.78	2.09
23,	1.48	1.48	1.45	1.88	2.51	1.92	1.61	1.88	1.55	1.61	1.59	2.04
24,	1.54	1.50	1.45	1.82	3.16	1.80	1.60	1.88	1.54	1.60	1.56	2.06
25,	1.50	1.54	1.45	1.80	3.50	1.82	1.61	1.91	1.52	1.61	1.54	2.06
26,	1.48	1.55	1.42	1.81	3.10	1.92	1.61	1.82	1.55	1.60	1.49	2.06
27,	1.51	1.65	1.38	1.74	2.76	1.86	1.60	1.84	1.53	1.59	1.50	2.05
28,	1.53	1.66	1.40	1.71	2.66	1.77	1.62	1.79	1.54	1.54	1.52	2.06
29,	1.50	1.48	1.50	1.61	....	1.77	1.62	1.75	1.54	1.52	1.58	2.10
30,	1.54	1.50	1.62	1.61	....	1.72	1.62	1.78	1.65	1.52	1.55	2.02
31,	1.55	....	1.46	1.61	....	1.72	....	1.72	....	1.52	1.54	....

Note.—**Gage heights affected by the construction of a cofferdam for a pier of new bridge.

DAILY DISCHARGE, IN SECOND-FEET, OF SPRING CREEK NEAR BELLEFONTE. CENTRE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	176	176	180	160	246	483	226	203	216	249	183	183
2,	176	172	180	172	483	404	231	203	255	212	212	176
3,	178	185	207	160	394	435	234	198	358	231	231	176
4,	172	189	226	168	348	419	231	212	348	226	196	176
5,	176	180	203	176	327	394	221	212	327	249	194	176
6,	176	176	166	168	313	355	214	198	310	241	194	178
7,	187	185	189	443	279	341	214	200	288	231	187	176
8,	178	180	194	300	276	324	216	207	270	231	194	176
9,	185	187	216	241	264	320	200	198	249	236	231	176
10,	185	185	234	212	261	341	214	198	241	216	200	176
11,	180	178	200	210	261	491	216	198	224	219	196	189
12,	176	189	176	261	279	306	231	210	216	221	194	....
13,	176	189	176	249	291	294	216	203	224	226	191	....
14,	180	185	198	241	270	291	214	191	221	212	187	....
15,	194	176	198	224	1410	324	214	194	216	212	187	....
16,	198	194	194	231	981	279	221	200	210	261	187	....
17,	200	221	180	224	752	276	214	200	207	231	185	....
18,	178	221	156	288	631	282	214	194	198	224	180	....
19,	176	216	172	431	558	261	212	189	194	221	180	....
20,	172	212	172	383	527	261	206	187	198	216	180	....
21,	176	203	176	327	500	252	200	231	189	219	191	....
22,	180	180	168	276	518	264	200	276	187	212	241	....
23,	172	172	166	270	496	282	200	270	187	200	196	....
24,	185	176	166	252	848	246	198	270	185	198	189	....
25,	176	185	166	246	1100	252	200	279	180	200	185	....
26,	172	187	160	249	806	282	200	252	187	198	174	....
27,	178	210	152	231	611	264	198	258	183	196	176	....
28,	183	212	156	224	563	238	203	244	185	185	180	....
29,	176	172	176	200	....	238	203	234	185	180	194	....
30,	185	176	203	200	....	226	203	241	210	180	187	....
31,	187	....	168	200	....	226	....	226	....	180	185	....

Notes.—Six second-feet have been added to daily discharge for canal. The discharge subsequent to September 11 is not given on account of the construction of a cofferdam for a new pier, which destroyed the relation between gage height and discharge.

ESTIMATED MONTHLY DISCHARGE OF SPRING CREEK NEAR BELLEFONTE, CENTRE COUNTY, PA.

(Drainage area 145 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	200	172	180	1.24	1.43
November,	221	172	189	1.30	1.45
December,	234	152	183	1.26	1.46
1915.					
January,	443	160	246	1.70	1.96
February,	1410	246	521	3.59	3.74
March,	491	226	311	2.14	2.47
April,	234	198	212	1.46	1.63
May,	279	187	219	1.51	1.74
June,	358	180	228	1.57	1.75
July,	261	180	217	1.50	1.73
August,	241	174	193	1.33	1.53

Note.—From September 12 to 30, 1915, gage heights affected by the construction of a cofferdam for a pier of new bridge, which destroyed the relation between gage height and discharge.

SUSQUEHANNA BASIN—STATION NO. 22.

BALD EAGLE CREEK AT BEECH CREEK, PA.

DESCRIPTION OF STATION.

LOCATION—At three span, steel, highway bridge at Beech Creek Station, Clinton County.

RECORDS AVAILABLE—Discharge complete from June 24, 1910, to September 30, 1915. For other records on this creek see Bald Eagle Creek at Milesburg.

DRAINAGE AREA—565 square miles.

GAGE—A sectional chain gage, whose elevation of zero is arbitrary, is located on the upstream side of the bridge and is read twice daily by S. C. Mains.

CHANNEL—The right bank is about 35 feet above the bed of the creek, while the left bank is about 8 to 10 feet above the bed, which is composed of rocks, gravel and mud.

DISCHARGE MEASUREMENTS OF BALD EAGLE CREEK AT BEECH CREEK, CLINTON COUNTY, PA.

(Drainage area 565 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec. ft.	
19	Jan. 7	Taylor & Shade, ...	1038	5.83	5846	Float measurement.
20	Jan. 7	Taylor & Shade, ...	1108	6.10	6506	Float measurement.
21	Sept. 18	Reckord & Gough, ...	387	1.62	222	0.6 method.

DISCHARGE TABLE FOR BALD EAGLE CREEK AT BEECH CREEK, CLINTON COUNTY, PA., FROM JANUARY 1, 1914.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
1.30	100	.50	710	.70	1795	.90	3460	.10	5700
.40	125	.60	780	.80	1910	5.00	3630	.20	5900
.50	150	.70	855	.90	2025	.10	3800	.30	6110
.60	190	.80	930	4.00	2145	.20	3970	.40	6320
.70	235	.90	1010	.10	2265	.30	4150	.50	6530
.80	280	3.00	1100	.20	2395	.40	4330	.60	6740
.90	330	.10	1190	.30	2530	.50	4520	.70	6960
2.00	390	.20	1280	.40	2670	.60	4710	.80	7190
.10	450	.30	1375	.50	2820	.70	4900	.90	7420
.20	510	.40	1470	.60	2970	.80	5100	7.00	7650
.30	570	.50	1575	.70	3130	.90	5300		
.40	640	.60	1685	.80	3290	6.00	5500		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF BALD EAGLE CREEK AT BEECH CREEK, CLINTON COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.50	‖1.55	1.62	....	3.57	3.49	2.36	1.90	2.48	2.79	‖1.99	1.84
2,	1.50	1.55	1.68	....	5.09	3.25	2.29	‖1.89	2.50	2.70	2.01	1.80
3,	1.51	1.55	1.76	....	4.03	3.05	2.22	1.88	5.33	2.80	2.80	1.76
4,	‖1.52	1.55	1.75	....	3.43	2.79	‖2.16	2.16	4.42	‖2.93	2.37	1.76
5,	1.52	1.56	1.62	....	3.21	2.75	2.10	2.40	3.74	3.15	2.80	‖1.78
6,	1.54	1.58	‖1.66	....	3.21	2.75	2.25	2.28	‖3.39	3.02	2.18	1.80
7,	1.53	1.51	1.69	†5.81	‖3.03	‖2.61	2.50	2.10	3.04	3.52	2.10	1.87
8,	1.52	‖1.54	2.16	4.78	2.85	2.47	2.46	2.07	2.81	4.00	‖2.20	1.86
9,	1.52	1.56	2.10	3.68	2.74	2.54	2.39	‖2.02	2.60	‖3.74	2.31	1.78
10,	1.52	1.56	2.00	‖3.24	2.57	2.58	2.28	1.98	2.48	3.49	2.22	1.74
11,	‖1.56	1.55	1.89	2.81	2.45	‖2.56	‖2.27	1.94	2.39	‖3.36	2.12	1.70
12,	1.60	1.54	1.84	2.70	2.58	2.55	2.23	1.95	3.33	3.24	2.14	‖1.72
13,	1.62	1.50	‖1.76	3.49	3.09	2.47	2.22	2.00	‖2.77	2.98	2.08	1.74
14,	1.62	1.57	*	3.14	††3.50	‖2.56	2.17	1.95	2.21	2.76	1.99	1.72
15,	1.62	††1.60	....	2.89	5.84	2.64	2.10	1.88	2.26	2.64	‖1.96	1.68
16,	1.68	2.25	....	2.65	5.75	2.66	2.09	‖1.95	2.21	2.60	1.94	1.65
17,	1.76	1.77	....	††2.65	4.67	2.66	2.08	2.02	2.10	2.46	1.92	1.65
18,	‖1.69	1.62	....	3.69	4.11	2.62	‖2.03	2.00	2.02	‖2.35	1.87	1.64
19,	1.62	1.49	....	5.83	3.77	2.56	1.98	1.91	1.98	2.24	1.80	‖1.72
20,	1.60	1.57	....	4.71	3.64	2.53	1.98	1.90	‖1.96	2.20	1.86	1.81
21,	1.60	1.55	....	3.93	‖9.64	‖2.54	1.94	2.12	1.93	2.22	1.87	1.74
22,	1.58	‖1.52	....	3.37	3.65	2.55	1.95	3.88	1.96	2.28	††2.60	1.68
23,	1.56	1.49	....	3.15	3.83	2.60	1.96	‖3.79	2.00	2.10	2.35	1.64
24,	1.54	1.45	....	‖2.98	6.41	2.64	1.96	3.70	1.90	2.10	2.22	1.63
25,	‖1.53	1.56	....	2.81	8.12	2.68	‖1.93	3.69	1.87	‖2.11	2.15	1.64
26,	1.50	1.57	....	2.71	5.47	2.76	1.90	3.46	1.81	2.13	2.08	‖1.64
27,	1.51	1.55	....	2.53	4.37	2.74	1.90	3.18	‖1.80	2.12	‖2.07	1.64
28,	1.50	1.55	....	2.48	‖3.93	‖2.64	1.90	2.92	1.80	1.95	‖2.06	1.62
29,	1.50	‖1.56	....	2.39	....	2.54	1.88	2.88	1.77	1.94	‖2.05	1.60
30,	1.56	1.57	....	2.59	....	2.46	1.90	‖2.78	2.00	1.92	2.05	1.60
31,	‖1.56	....	....	††2.60	....	2.42	....	2.68	....	1.97	2.06	....

Notes.—*Creek frozen December 14, 1914, to January 6, 1915, inclusive. †Maximum 6.89 ft. at 4 P. M. from hydrograph. ‖Interpolated. ††Estimated.

DAILY DISCHARGE, IN SECOND-FEET, OF BALD EAGLE CREEK AT BEECH CREEK, CLINTON COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	150	170	199	140	1650	1560	612	330	696	922	384	300
2,	150	170	226	140	3780	1330	564	325	710	855	396	280
3,	154	170	262	140	2180	1140	522	320	4200	930	930	262
4,	158	170	258	140	1500	922	486	486	2700	1080	619	262
5,	158	170	199	140	1290	892	450	640	1840	1240	570	271
6,	166	162	217	140	1290	892	540	558	1460	1120	498	280
7,	158	154	230	†5120	1130	788	710	450	1140	1600	450	315
8,	158	166	486	3260	970	689	682	432	938	2140	510	310
9,	158	174	450	1770	885	738	633	402	780	1840	677	271
10,	158	170	390	1820	759	766	558	378	696	1560	522	253
11,	174	170	325	938	675	752	552	354	633	1430	462	235
12,	190	166	300	855	766	745	546	360	1400	1820	474	244
13,	199	150	262	1560	1180	689	522	390	908	1080	438	253
14,	199	178	*140	1230	1580	752	492	360	516	900	384	244
15,	199	190	140	1000	5180	810	450	320	546	810	366	226
16,	226	540	140	818	5000	825	444	380	516	780	354	212
17,	262	266	140	818	3080	825	438	402	450	682	342	212
18,	230	199	140	1780	2280	796	408	390	402	605	315	208
19,	199	148	140	5160	1880	752	378	336	378	584	280	244
20,	190	178	140	3150	1730	731	378	330	366	510	310	285
21,	190	170	140	2060	1730	738	354	462	348	522	315	253
22,	182	158	140	1440	1740	745	360	2000	366	558	780	226
23,	174	148	140	1220	1940	780	366	1900	390	450	605	208
24,	166	138	140	1080	6340	810	366	1800	330	450	522	204
25,	158	174	140	938	10300	840	348	1780	315	456	480	208
26,	150	178	140	862	4460	900	330	1530	285	462	438	208
27,	154	170	140	731	2630	885	330	1260	280	462	432	208
28,	150	170	140	696	2060	810	330	1030	280	360	426	199
29,	150	174	140	683	....	738	320	994	266	354	420	190
30,	174	178	140	778	....	682	330	915	390	342	420	190
31,	174	....	140	780	....	654	....	840	....	372	426	....

Notes.—*Creek frozen December 14, 1914, to January 6, 1915, inclusive, and discharge estimated from Bald Eagle Creek at Milesburg. †Maximum=7400 sec.-ft. Discharge above 7650 sec.-ft. is estimated.

ESTIMATED MONTHLY DISCHARGE OF BALD EAGLE CREEK AT BEECH CREEK, CLINTON COUNTY, PA.

(Drainage area 565 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	262	150	176	0.31	0.36
November,	540	138	184	0.33	0.37
December,	486	....	204	0.36	0.42
1915.					
January,	7400	....	1320	2.34	2.70
February,	††10300	675	2500	4.42	4.60
March,	1560	654	838	1.48	1.71
April,	710	320	460	0.81	0.90
May,	2000	320	724	1.28	1.48
June,	4200	266	818	1.45	1.62
July,	2140	342	862	1.53	1.76
August,	930	280	466	0.82	0.94
September,	315	190	242	0.43	0.48
The year,	††10300	138	733	1.30	17.34

Notes.—Creek frozen December 14, 1914, to January 6, 1915, inclusive, and discharge estimated from Bald Eagle Creek at Milesburg. ††Estimated.

SUSQUEHANNA BASIN—STATION NO. 23.

PINE CREEK AT WATERVILLE, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge three-quarters of a mile above railroad station at Waterville, Lycoming County.

RECORDS AVAILABLE—Discharge complete from July 15, 1908, to September 30, 1915.

DRAINAGE AREA—750 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge, and is read twice daily by Robert Myers.

CHANNEL—The right bank never overflows except in extreme stages, such as the floods of 1865 and 1889, the left bank is high and not subject to overflow, and the bed is composed of gravel.

DISCHARGE MEASUREMENT OF PINE CREEK AT WATERVILLE, LYCOMING COUNTY, PA.

(Drainage area 750 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec. ft.	
85	Sept. 15	Reckord & Gough, ...	231	1.28	222	0.6 method.

DISCHARGE TABLE FOR PINE CREEK AT WATERVILLE, LYCOMING COUNTY. PA., FROM JANUARY 1, 1914.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
0.60	25	.10	1955	.60	6660	.10	13600	.60	22260
.70	35	.20	2085	.70	6910	.20	13900	.70	22650
.80	50	.30	2220	.80	7165	.30	14200	.80	23045
.90	70	.40	2355	.90	7420	.40	14510	.90	23445
1.00	90	.50	2500	6.00	7675	.50	14830	11.00	23850
.10	120	.60	2645	.10	7930	.60	15160	.10	24250
.20	160	.70	2790	.20	8185	.70	15490	.20	24650
.30	210	.80	2935	.30	8440	.80	15820	.30	25070
.40	260	.90	3090	.40	8700	.90	16150	.40	25450
.50	320	4.00	3250	.50	8965	9.00	16490	.50	25850
.60	380	.10	3410	.60	9230	.10	16830	.60	26260
.70	450	.20	3575	.70	9500	.20	17170	.70	26670
.80	520	.30	3750	.80	9775	.30	17515	.80	27080
.90	600	.40	3940	.90	10050	.40	17860	.90	27490
2.00	690	.50	4130	7.00	10325	.50	18210	12.00	27900
.10	790	.60	4320	.10	10610	.60	18570	.10	28320
.20	890	.70	4520	.20	10905	.70	18930	.20	28740
.30	990	.80	4740	.30	11200	.80	19290	.30	29160
.40	1100	.90	4970	.40	11500	.90	19650	.40	29580
.50	1220	5.00	5200	.50	11800	10.00	20010	.50	30000
.60	1340	.10	5430	.60	12100	.10	20380		
.70	1460	.20	5670	.70	12400	.20	20750		
.80	1580	.30	5910	.80	12700	.30	21120		
.90	1700	.40	6160	.90	13000	.40	21490		
3.00	1825	.50	6410	8.00	13300	.50	21870		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF PINE CREEK AT WATERVILLE, LYCOMING COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.80	1.00	1.30	....	3.82	3.26	2.35	1.94	1.73	2.87	1.81	1.97
2,	0.80	1.00	1.30	....	3.97	2.66	2.25	1.94	1.73	2.67	2.86	1.87
3,	0.80	1.00	1.40	....	3.62	2.36	2.05	1.84	1.83	2.57	2.61	1.82
4,	0.80	1.00	1.35	....	3.12	2.01	1.95	1.89	1.78	2.62	2.36	1.72
5,	0.80	0.95	1.30	....	2.87	1.96	2.00	2.54	1.63	2.87	2.21	1.72
6,	0.90	0.90	1.30	....	2.87	1.96	2.30	2.34	1.53	2.52	1.96	1.82
7,	0.90	0.90	1.45	†8.16	2.87	1.86	3.55	2.39	1.53	2.57	2.16	2.32
8,	0.90	0.90	1.50	6.80	2.67	1.76	3.75	2.44	1.48	3.92	1.96	2.42
9,	0.90	0.90	1.55	4.75	2.42	1.86	4.30	2.39	1.43	§5.82	1.91	2.37
10,	0.90	1.00	1.50	3.95	2.27	1.76	4.75	2.34	1.33	4.42	1.96	2.17
11,	0.90	1.05	1.40	3.40	2.27	1.86	5.25	2.19	1.23	3.62	1.71	1.92
12,	1.10	1.00	1.40	3.25	2.27	1.86	4.75	2.04	1.23	3.42	1.71	1.67
13,	1.10	1.00	1.40	3.00	2.57	1.86	4.00	1.99	1.23	2.97	1.71	1.52
14,	1.00	1.00	1.40	2.70	2.67	1.76	3.40	1.99	1.28	2.92	1.71	1.27
15,	1.00	1.05	*	2.50	3.52	1.86	2.90	1.84	1.28	2.67	1.46	1.40
16,	1.20	1.50	....	2.40	5.67	1.96	2.70	1.79	1.58	2.47	1.41	1.30
17,	1.20	2.00	....	2.35	4.87	2.01	2.45	1.94	1.43	2.27	1.26	1.35
18,	1.30	1.75	....	2.70	3.92	1.96	2.25	1.94	1.23	2.12	1.21	1.55
19,	1.30	1.60	....	5.30	3.62	1.91	2.15	1.74	1.23	1.97	1.21	1.60
20,	1.35	1.60	....	4.90	3.37	1.96	2.05	1.69	1.23	1.87	1.21	1.60
21,	1.25	1.50	....	4.15	3.22	2.01	1.95	1.94	1.23	1.72	1.36	1.60
22,	1.15	1.55	....	3.55	3.37	2.06	1.85	2.34	1.23	1.62	1.51	1.60
23,	1.10	1.40	....	3.30	3.62	2.16	1.95	2.59	1.38	1.52	1.71	1.50
24,	1.00	1.40	....	2.95	6.47	2.46	1.35	2.54	1.33	1.57	1.86	1.45
25,	1.00	1.40	....	2.90	‡8.77	2.61	1.70	2.49	1.33	1.72	1.91	1.35
26,	1.00	1.45	....	2.70	6.22	3.01	1.65	2.44	1.33	1.92	1.71	1.30
27,	1.00	1.40	....	2.50	4.72	2.86	1.65	2.34	1.23	1.92	1.76	1.30
28,	0.90	1.20	....	2.40	3.97	2.76	2.60	2.19	1.18	1.72	1.81	1.30
29,	0.90	1.10	....	2.25	....	2.76	2.45	2.09	1.13	1.62	1.81	1.30
30,	1.00	1.20	....	1.95	....	2.66	2.00	1.99	1.28	1.52	1.91	1.30
31,	1.00	....	....	1.75	....	2.51	....	1.94	....	1.52	1.61	....

Notes.—*Creek frozen December 15, 1914, to January 6, 1915, inclusive. †Maximum 9.30 ft. at 5 P. M. ‡Maximum 9.97 ft. at midnight from hydrograph. §Maximum 6.92 ft. at 5 A. M. from hydrograph.

DAILY DISCHARGE, IN SECOND-FEET, OF PINE CREEK AT WATERVILLE, LYCOMING COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	50	90	210	220	2970	2170	1040	636	471	1660	528	663
2,	50	90	210	220	3200	1410	940	636	471	1420	1650	576
3,	50	90	260	220	2670	1060	740	552	544	1300	1350	536
4,	50	90	235	220	1980	700	645	592	506	1360	1060	464
5,	50	80	210	220	1660	654	690	1270	401	1660	900	464
6,	70	70	210	220	1660	654	990	1030	338	1240	654	536
7,	70	70	290	†13800	1660	568	2570	1090	338	1300	850	1010
8,	70	70	320	9780	1420	492	2860	1150	308	3120	654	1120
9,	70	[illegible]	350	4630	1120	568	3750	1090	278	§7220	609	1070
10,	70	90	320	3170	960	492	4630	1080	225	3980	654	860
11,	70	105	260	2360	960	568	5790	880	175	2670	457	618
12,	120	90	260	2150	960	568	4630	730	175	2380	457	429
13,	120	90	260	1820	1300	568	3250	681	175	1790	457	332
14,	90	90	260	1460	1420	492	2360	681	200	1720	457	195
15,	90	105	*195	1220	2530	568	1700	552	200	1420	296	260
16,	160	320	195	1100	6840	654	1460	513	338	1180	266	210
17,	160	690	195	1040	4900	700	1160	636	278	960	190	235
18,	210	485	195	1460	3120	654	940	636	175	810	165	350
19,	210	380	195	5910	2670	609	840	478	175	663	165	380
20,	235	380	195	4970	2310	654	740	443	175	576	165	380
21,	185	320	139	3490	2110	700	645	636	175	464	240	380
22,	140	350	139	2570	2310	750	560	1030	175	394	326	380
23,	120	260	139	2220	2670	850	645	1330	250	332	457	320
24,	90	260	139	1760	8890	1170	560	1270	225	362	568	290
25,	90	260	139	1700	‡15700	1350	450	1210	225	464	609	235
26,	90	290	139	1460	8240	1840	415	1150	225	618	457	210
27,	90	260	139	1220	4560	1650	415	1030	175	618	492	210
28,	70	160	139	1100	3200	1530	1340	880	152	464	528	210
29,	70	120	241	940	....	1530	1160	780	132	394	528	210
30,	90	160	241	645	....	1410	690	681	200	332	609	210
31,	90	....	241	485	....	1230	....	686	....	332	387	....

Notes.—*Creek frozen December 15, 1914, to January 6, 1915, inclusive, and discharge estimated from Lycoming Creek near Trout Run. †Maximum=17500 sec.-ft. ‡Maximum=19900 sec.-ft. §Maximum=10100 sec.-ft.

ESTIMATED MONTHLY DISCHARGE OF PINE CREEK AT WATERVILLE, LYCOMING COUNTY. PA.

(Drainage area 750 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	235	50	108	0.14	0.16
November,	690	70	200	0.27	0.30
December,	350	....	215	0.29	0.33
1915.					
January,	13800	....	2380	3.17	3.66
February,	19900	960	3360	4.48	4.66
March,	2170	492	929	1.24	1.43
April,	5790	415	1620	2.16	2.41
May,	1380	443	837	1.12	1.29
June,	544	132	263	0.35	0.39
July,	10100	332	1390	1.85	2.13
August,	1650	165	554	0.74	0.85
September,	1120	195	445	0.59	0.66
The year,	19900	50	1020	1.37	18.27

Note.—Creek frozen December 15, 1914, to January 6, 1915, inclusive, and discharge estimated from Lycoming Creek near Trout Run.

SUSQUEHANNA BASIN—STATION NO. 24.

LYCOMING CREEK NEAR TROUT RUN, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge about 2¼ miles above Trout Run, Lycoming County.

RECORDS AVAILABLE—Discharge complete from December 4, 1913, to September 30, 1915. For other records on this creek at Bridge No. 2 near Williamsport, see 1910-11, 1912 and 1913 reports of the Water Supply Commission.

DRAINAGE AREA—185 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge, and is read twice daily by Orpha Apker.

CHANNEL—The right bank is of medium height and overflows during extreme stages, the left bank is high and does not overflow, and the bed is composed of gravel and sand and is very uniform.

DISCHARGE MEASUREMENTS OF LYCOMING CREEK NEAR TROUT RUN, LYCOMING COUNTY, PA.

(Drainage area 185 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.ft.	
31	Jan. 6	Taylor & Shade, ...	65	2.66	58	Ice measurement.
32	Jan. 6	Taylor & Shade, ...	65	2.68	60	Ice measurement.
33	Jan. 14	Critchlow, ...	316	4.31	712	0.6 method.
34	July 9	Gough, ...	603	6.87	2501	Surface method.
35	July 9	Gough, ...	578	6.63	2316	Surface method.
36	July 9	Gough, ...	556	6.39	2236	Surface method.
37	Sept. 14	Reckord & Gough, ...	112	2.33	110	Wading measurement at bridge section.

DISCHARGE TABLE FOR LYCOMING CREEK NEAR TROUT RUN, LYCOMING COUNTY, PA., FROM DECEMBER 4, 1913.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.
1.70	82	3.00	192	.30	644	.60	1350	.90	2260
.80	84	.10	216	.40	690	.70	1412	7.00	2350
.90	86	.20	242	.50	736	.80	1476	.10	2442
2.00	42	.30	270	.60	786	.90	1540	.20	2540
.10	48	.40	298	.70	836	6.00	1604	.30	2646
.20	56	.50	328	.80	888	.10	1670	.40	[illegible]
.30	66	.60	362	.90	940	.20	1736	.50	2908
.40	76	.70	396	5.00	994	.30	1804	.60	3062
.50	92	.80	434	.10	1050	.40	1872	.70	[illegible]
.60	108	.90	472	.20	1106	.50	1944	.80	[illegible]
.70	126	4.00	514	.30	1166	.60	2016	.90	3567
.80	146	.10	556	.40	1226	.70	2034	8.00	3747
.90	168	.20	600	.50	1288	.80	2176		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF LYCOMING CREEK NEAR TROUT RUN, LYCOMING COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	....	2.95	5.57	2.73	5.52	3.68	2.41	2.08	2.03	2.24
2,	....	2.85	4.74	2.58	6.45	3.56	2.37	2.10	2.00	2.12
3,	....	2.98	4.34	2.88	6.39	3.43	2.44	2.07	2.00	2.14
4,	2.70	3.00	4.29	2.76	4.72	3.26	2.77	2.03	1.97	2.09
5,	2.70	2.95	4.11	2.58	4.39	3.50	2.64	2.00	1.91	2.02
6,	2.70	2.90	3.74	2.63	4.12	4.66	2.47	2.09	1.93	2.00
7,	2.70	2.85	3.89	2.58	4.22	4.08	2.37	2.16	1.87	1.98
8,	3.10	2.80	3.49	2.56	5.69	3.93	2.89	2.12	2.40	1.94
9,	3.85	2.82	3.19	2.58	6.05	6.47	2.79	2.06	2.23	1.90
10,	3.65	2.90	3.37	2.53	5.12	5.46	2.61	2.43	2.09	1.90
11,	3.45	2.90	3.07	2.53	4.67	4.93	2.47	2.53	2.06	1.88
12,	3.25	2.78	2.89	2.43	4.42	5.97	2.37	2.30	2.11	1.85
13,	3.06	2.65	3.04	2.46	4.15	‡7.44	2.27	2.26	2.07	1.90
14,	2.90	3.05	2.97	2.56	3.95	6.04	2.24	2.53	2.05	1.89
15,	2.90	2.98	3.19	2.56	3.87	5.12	2.17	2.76	2.00	1.85
16,	2.82	3.00	3.24	3.18	5.17	4.63	2.19	2.56	1.85	1.85
17,	2.80	2.92	3.04	4.00	4.87	4.18	2.11	2.46	1.94	1.82
18,	2.75	2.92	2.94	4.30	4.65	3.90	2.09	2.36	1.95	1.80
19,	2.68	2.75	2.81	3.83	4.55	3.66	2.08	2.26	1.95	1.77
20,	2.60	2.72	2.81	3.50	5.90	3.48	2.12	2.17	2.07	1.72
21,	2.62	2.78	2.87	3.23	5.75	3.30	2.10	2.12	3.31	1.80
22,	2.62	2.85	2.89	3.23	5.15	3.18	2.10	2.07	2.95	1.80
23,	2.60	2.75	2.79	3.18	4.65	3.06	2.08	2.03	2.55	1.76
24,	3.85	2.70	2.77	3.08	4.29	2.96	2.06	2.02	2.37	1.81
25,	3.40	2.88	2.79	4.03	4.07	2.86	2.05	2.10	2.29	1.78
26,	3.32	2.90	2.74	5.30	4.95	2.76	2.02	1.98	2.19	1.75
27,	3.12	2.78	2.77	7.31	4.47	2.68	2.08	1.99	2.11	1.76
28,	3.08	2.80	2.74	†9.88	4.25	2.60	2.30	2.58	2.13	1.80
29,	3.15	2.88	....	7.22	4.09	2.56	2.32	2.36	2.20	1.78
30,	3.15	4.78	....	6.28	3.89	2.50	2.20	2.16	2.53	1.74
31,	3.00	5.67	....	5.75	....	2.46	....	2.08	2.37	....

Notes.—†Maximum 10.28 ft. at noon. ‡Maximum 8.20 ft. at 3 A. M. from hydrograph.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF LYCOMING CREEK NEAR TROUT RUN, LYCOMING COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.78	1.91	2.08	....	4.06	3.88	3.06	3.27	2.58	6.47	2.59	2.63
2,	1.74	1.85	2.11	....	4.67	3.78	2.94	3.27	2.61	4.70	3.74	2.54
3,	1.76	1.85	2.10	....	4.01	3.43	2.96	3.15	2.66	4.47	4.12	2.49
4,	1.80	1.85	2.06	....	3.71	3.23	2.83	3.29	2.54	4.87	4.06	2.45
5,	1.78	1.84	2.05	....	3.54	3.22	2.98	4.09	2.44	4.57	3.56	2.43
6,	1.76	1.82	2.08	....	3.87	3.26	3.10	§4.25	2.38	4.20	5.36	2.58
7,	1.75	1.80	2.10	†9.44	3.76	3.16	3.92	3.59	2.31	4.02	4.48	2.63
8,	1.75	1.86	2.14	5.98	3.59	3.10	3.90	3.59	2.34	‡‡7.80	4.34	2.81
9,	1.78	1.88	2.25	4.79	3.41	3.03	4.28	3.41	2.27	6.63	4.30	2.59
10,	1.78	1.86	2.25	4.08	3.18	2.98	4.68	3.23	2.25	5.00	4.22	2.47
11,	1.97	1.90	2.22	3.88	3.13	2.93	4.83	3.09	2.24	4.77	4.09	2.41
12,	1.95	1.90	2.22	4.18	3.19	2.78	4.48	3.01	2.18	4.65	3.76	2.35
13,	1.93	1.85	2.18	4.95	3.20	2.68	3.88	2.97	2.16	4.13	3.46	2.37
14,	1.91	1.88	2.25	4.31	3.11	2.68	3.66	2.92	2.15	4.13	3.24	2.32
15,	1.88	2.25	2.19	3.97	6.17	2.75	3.48	2.85	2.18	3.65	2.99	2.27
16,	2.14	3.35	2.18	3.76	5.66	2.93	3.30	2.73	2.28	3.49	2.92	2.23
17,	2.42	2.68	*	3.68	4.84	2.73	3.18	2.95	2.25	3.37	2.82	2.15
18,	2.24	2.43	....	4.88	4.44	2.74	3.06	2.83	2.24	3.24	2.72	2.17
19,	2.20	2.32	....	7.36	4.14	2.80	2.99	2.69	2.24	3.10	2.64	3.78
20,	2.12	2.27	....	5.62	4.03	2.76	2.98	2.59	2.21	2.85	2.59	2.75
21,	2.08	2.25	....	4.55	4.01	2.93	2.76	2.79	2.14	2.75	2.55	2.81
22,	2.04	2.18	....	4.12	4.11	2.93	2.70	3.36	3.11	2.78	4.62	2.88
23,	1.99	2.12	....	4.02	4.36	2.96	2.68	3.45	2.96	2.75	3.69	2.63
24,	1.95	2.10	....	3.70	‡8.53	3.06	2.65	3.30	2.62	2.60	3.36	2.55
25,	1.92	2.08	....	3.50	7.85	3.16	2.62	3.25	2.88	2.57	3.22	2.48
26,	1.93	2.06	....	3.38	5.74	3.58	2.58	3.10	2.34	2.56	3.02	2.43
27,	1.90	2.05	....	3.29	4.89	3.30	2.76	3.01	2.26	2.87	2.93	2.41
28,	1.88	2.06	....	3.22	4.45	3.30	2.82	2.90	2.24	2.75	2.86	2.33
29,	1.85	2.05	....	2.95	....	3.30	3.85	2.82	2.18	2.63	2.99	2.33
30,	1.90	2.05	....	2.78	....	3.10	3.46	2.76	2.62	2.54	2.96	2.27
31,	1.90	....	....	3.15	....	3.04	....	2.69	....	2.83	2.79	....

Notes.—*Creek frozen December 17, 1914, to January 6, 1915, inclusive. †Maximum 10.30 ft. at 7 A. M. ‡Maximum 9.99 ft. at 5.15 P. M. §Maximum 4.72 ft. at 5.30 P. M. ‡‡Maximum 11.80 ft. at 5.50 P. M.

DAILY DISCHARGE, IN SECOND-FEET, OF LYCOMING CREEK NEAR TROUT RUN, LYCOMING COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	....	180	1330	132	1300	389	78	47	44	60
2,	....	157	857	105	1910	348	73	48	42	50
3,	....	187	662	164	2250	307	82	46	42	51
4,	126	192	640	138	846	259	140	44	40	47
5,	126	180	560	105	685	328	115	42	37	43
6,	126	168	411	113	565	816	87	47	38	42
7,	126	157	468	105	609	548	73	53	35	41
8,	216	146	325	102	1410	485	166	50	76	38
9,	453	150	239	105	1640	1920	144	46	59	36
10,	379	168	290	97	1060	1260	110	81	47	36
11,	313	168	209	97	821	956	87	97	46	36
12,	256	142	166	81	699	1580	73	66	49	35
13,	204	117	202	86	578	‡2820	63	62	46	36
14,	168	204	185	102	493	1630	60	97	45	36
15.	168	187	239	102	461	1060	54	138	42	35
16,	150	192	253	237	1090	801	55	102	35	35
17,	146	173	202	514	924	591	49	86	38	34
18,	136	173	178	644	811	472	47	72	39	34
19,	122	136	148	445	761	382	47	62	39	33
20,	108	130	148	328	1540	322	50	54	46	32
21,	112	142	161	250	1440	270	48	50	273	34
22,	112	157	166	250	1080	237	48	46	180	34
23,	108	136	144	237	811	206	47	44	100	33
24,	453	126	140	211	640	182	46	43	73	34
25,	298	164	144	527	543	159	45	48	65	34
26,	276	168	134	1170	967	138	43	41	55	33
27,	221	142	140	2660	722	122	47	41	49	33
28,	211	146	134	†6850	622	108	66	105	50	34
29,	229	164	....	2560	552	102	68	72	56	34
30,	229	878	....	1790	468	92	56	53	97	33
31,	192	1390	....	1440	....	86	....	47	73	....

Notes.—†Maximum = 7510 sec.-ft. ‡Maximum = 4120 sec.-ft. Discharges above 3750 sec.-ft. are estimated.

DAILY DISCHARGE, IN SECOND-FEET, OF LYCOMING CREEK NEAR TROUT RUN, LYCOMING COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	33	37	47	54	539	464	206	262	105	1920	106	113
2,	33	35	49	54	821	426	178	262	110	836	411	98
3,	33	35	48	54	518	307	182	229	119	722	565	90
4,	34	35	46	54	400	250	153	267	98	924	539	84
5,	34	35	45	54	342	248	187	552	82	771	348	81
6,	33	34	47	54	461	259	216	§622	74	600	1200	97
7,	33	34	48	†6130	419	232	480	359	67	522	727	113
8,	33	35	51	1590	359	216	472	359	70	‡‡3390	662	148
9,	34	36	61	883	301	199	635	301	63	2040	644	106
10,	34	36	61	548	237	187	826	250	61	994	609	87
11,	40	36	58	464	224	175	904	214	60	872	552	78
12,	39	36	58	591	239	142	727	194	54	811	419	71
13,	38	35	54	967	242	122	464	185	53	569	316	73
14,	37	36	61	649	219	122	382	173	52	569	253	68
15,	36	61	55	501	1720	186	322	157	54	379	190	63
16,	51	284	54	419	1390	175	270	144	64	325	173	59
17,	79	122	*44	889	909	132	237	180	61	290	150	52
18,	60	81	44	930	708	134	206	153	60	253	130	54
19,	56	68	44	2720	574	146	190	124	60	216	115	426
20,	50	63	44	1360	527	138	187	106	57	157	106	136
21,	47	61	34	761	518	175	138	144	51	136	100	148
22,	44	54	34	565	560	175	126	457	219	132	796	164
23,	41	50	34	522	672	182	122	813	182	136	393	113
24,	39	48	34	396	‡4620	206	117	270	112	108	287	100
25,	37	47	34	328	3480	232	112	256	74	103	248	89
26,	38	46	34	292	1440	355	105	216	70	102	197	81
27,	36	45	34	267	935	270	138	194	62	161	175	78
28,	36	45	34	248	713	270	150	168	60	136	159	69
29,	35	45	59	180	....	270	453	150	54	113	190	69
30,	36	45	59	142	....	216	316	138	112	98	182	63
31,	36	....	59	229	....	202	....	124	....	153	144	....

Notes.—*Creek frozen December 17, 1914, to January 6, 1915, inclusive, and discharge estimated from climatological records and one measurement under ice cover. †Maximum=7550 sec.-ft. ‡Maximum=7040 sec.-ft. §Maximum=846 sec.-ft. ‡‡Maximum=9200 sec.-ft. Discharges above 3750 sec.-ft. are estimated.

ESTIMATED MONTHLY DISCHARGE OF LYCOMING CREEK NEAR TROUT RUN, LYCOMING COUNTY, PA.

(Drainage area 185 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile. mile.	Depth in inches. inches.
a1914.					
January,	1390	117	223	1.20	1.39
February,	1330	134	317	1.71	1.78
March,	††7510	81	702	3.80	4.38
April,	2250	461	943	5.10	5.69
May,	††4120	86	612	3.31	3.81
June,	166	43	722	3.90	4.35
July,	138	41	62	0.34	0.39
August,	273	35	63	0.34	0.39
September,	60	32	38	0.20	0.23
b1914.					
October,	79	33	40	0.22	0.25
November,	284	34	55	0.30	0.34
December,	61	....	47	0.25	0.29
1915.					
January,	††7550	....	722	3.90	4.60
February,	††7040	219	860	4.65	4.84
March,	464	122	218	1.18	1.36
April,	904	105	307	1.66	1.85
May,	846	106	243	1.31	1.52
June,	219	51	81	0.44	0.49
July,	††9200	98	598	3.23	3.72
August,	1200	100	358	1.94	2.24
September,	426	52	102	0.55	0.61
The year,	††9200	33	303	1.64	22.11

Notes.—a-††Estimated.
b Creek frozen December 17, 1914, to January 6, 1915, inclusive, and discharge estimated from climatological records and one measurement under ice cover. ††Estimated.

SUSQUEHANNA BASIN—STATION NO. 25.

WEST BRANCH SUSQUEHANNA RIVER AT WILLIAMSPORT, PA.

DESCRIPTION OF STATION.

LOCATION—At five span, steel, through-truss, highway bridge at Market Street, Williamsport, Lycoming County.

RECORDS AVAILABLE—Discharge complete from March 1, 1895, to September 30, 1915. For other records on this river see West Branch Susquehanna River at Bower, West Branch Susquehanna River at Clearfield, West Branch Susquehanna River at Renovo and West Branch Susquehanna River at Lewisburg; also West Branch Susquehanna River at Allenwood in the 1910-11 Report of the Water Supply Commission.

DRAINAGE AREA—5,670 square miles.

GAGE—A standard chain gage, whose elevation of zero is 496.4 feet above mean sea level, is located on the upstream side of the bridge, and is read twice daily by John R. Mundy.

CHANNEL—Both banks are high and rocky, and the bed is composed of gravel and silt.

DISCHARGE MEASUREMENT OF WEST BRANCH SUSQUEHANNA RIVER AT WILLIAMSPORT, LYCOMING COUNTY, PA.

(Drainage area 5,670 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.ft.	
37	Sept. 16	Reckord & Gough, ...	3245	0.87	1884	0.6 method.

DISCHARGE TABLE FOR WEST BRANCH SUSQUEHANNA RIVER AT WILLIAMSPORT, LYCOMING COUNTY, PA., FROM JANUARY 1, 1914.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.
—.20	530	.70	8710	.60	25920	.50	48750	.40	82400
—.10	610	.80	9030	.70	26440	.60	49450	.50	83400
0.00	710	.90	9360	.80	26960	.70	50150	.60	84400
.10	810	4.00	9690	.90	27480	.80	50900	.70	85400
.20	920	.10	10040	8.00	28000	.90	51650	.80	86400
.30	1030	.20	10400	.10	28540	12.00	52400	.90	87400
.40	1150	.30	10770	.20	29080	.10	53150	16.00	88400
.50	1270	.40	11150	.30	29620	.20	53900	.10	89420
.60	1400	.50	11540	.40	30160	.30	54650	.20	90440
.70	1530	.60	11940	.50	30700	.40	55450	.30	91460
.80	1680	.70	12340	.60	31240	.50	56250	.40	92480
.90	1840	.80	12750	.70	31780	.60	57050	.50	93500
1.00	2010	.90	13170	.80	32340	.70	57850	.60	94520
.10	2180	5.00	13600	.90	32900	.80	58650	.70	95540
.20	2360	.10	14030	9.00	33460	.90	59450	.80	96560
.30	2550	.20	14470	.10	34020	13.00	60300	.90	97580
.40	2750	.30	14910	.20	34580	.10	61150	17.00	98600
.50	2950	.40	15350	.30	35140	.20	62000	.10	99640
.60	3150	.50	15800	.40	35700	.30	62850	.20	100680
.70	3360	.60	16250	.50	36260	.40	63700	.30	101720
.80	3580	.70	16700	.60	36840	.50	64600	.40	102760
.90	3800	.80	17150	.70	37420	.60	65500	.50	103800
2.00	4030	.90	17600	.80	38000	.70	66400	.60	104840
.10	4260	6.00	18060	.90	38580	.80	67300	.70	105880
.20	4500	.10	18520	10.00	39180	.90	68200	.80	106920
.30	4740	.20	18980	.10	39780	14.00	69100	.90	107960
.40	4990	.30	19460	.20	40380	.10	70000	18.00	109000
.50	5240	.40	19940	.30	40980	.20	70900	.40	118240
.60	5490	.50	20420	.40	41600	.30	71800	.50	114300
.70	5750	.60	20900	.50	42220	.40	72700	19.00	119600
.80	6020	.70	21400	.60	42840	.50	73650	.20	121720
.90	6290	.80	21900	.70	43480	.60	74600	.40	123840
3.00	6580	.90	22400	.80	44120	.70	75550	.50	124900
.10	6870	7.00	22900	.90	44760	.80	76500	20.00	130200
.20	7170	.10	23400	11.00	45400	.90	77450	.40	134520
.30	7470	.20	23900	.10	46050	15.00	78400	.50	135600
.40	7780	.30	24400	.20	46700	.10	79400	.70	137800
.50	8090	.40	24900	.30	47350	.20	80400	21.00	141000
.60	8400	.50	25400	.40	48050	.30	81400		

DAILY MEAN GAGE HEIGHTS. IN FEET, OF WEST BRANCH SUSQUEHANNA RIVER AT WILLIAMSPORT, LYCOMING COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	—0.18	0.00	0.27	0.68	3.31	6.93	3.69	2.55	3.37	4.70	1.71	2.16
2,	—0.18	0.01	0.25	0.81	8.77	5.72	3.46	2.36	3.00	4.70	1.85	1.79
3,	—0.18	0.02	0.33	1.08	10.26	5.10	3.24	2.18	3.15	4.41	2.60	1.51
4,	—0.18	0.01	0.56	1.49	8.37	4.67	3.05	2.08	4.78	4.72	3.78	1.29
5,	—0.18	0.01	0.73	1.77	6.66	4.05	2.91	2.52	5.63	5.48	3.45	1.17
6,	—0.18	—0.01	0.89	1.54	6.15	3.58	2.83	3.14	5.55	5.64	3.93	1.19
7,	—0.19	—0.01	0.97	5.81	6.06	3.21	2.83	2.93	4.32	4.60	3.78	1.23
8,	—0.16	—0.01	1.13	†14.29	5.55	3.08	3.45	2.80	3.56	4.47	3.67	1.17
9,	—0.16	—0.01	1.15	10.02	5.13	3.18	4.81	2.68	3.14	9.75	3.42	1.17
10,	—0.16	—0.02	1.24	7.72	4.56	3.00	5.60	2.72	2.85	8.50	3.14	1.21
11,	—0.13	—0.04	1.14	5.22	3.79	2.87	5.90	2.72	2.54	7.07	2.97	1.19
12,	—0.13	—0.05	1.03	5.42	3.48	2.83	5.75	2.61	2.35	5.52	2.79	1.19
13,	—0.12	—0.04	0.98	6.59	3.71	2.78	6.24	2.44	2.16	5.14	2.73	1.17
14,	—0.11	—0.03	0.93	5.57	4.01	2.76	5.13	2.24	1.97	4.70	2.46	1.15
15,	—0.11	0.01	0.85	4.68	7.21	2.70	4.27	2.06	2.00	4.13	2.33	1.09
16,	—0.02	0.26	0.83	4.39	12.45	2.66	3.59	1.92	2.25	3.59	2.97	0.95
17,	0.25	0.54	0.81	4.10	11.07	2.79	3.01	1.91	2.33	2.98	2.77	0.97
18,	0.45	0.74	0.80	4.22	9.01	3.28	2.87	2.00	1.92	2.62	2.63	0.87
19,	0.50	0.99	0.79	9.22	7.53	3.25	2.89	2.04	1.71	2.62	2.47	0.79
20,	0.44	0.95	0.79	11.66	6.48	3.16	2.79	1.94	1.57	2.68	2.33	0.73
21,	0.42	0.86	0.77	10.13	5.74	3.08	2.63	1.88	1.51	2.64	2.24	1.53
22,	0.34	0.80	0.77	7.84	5.91	2.99	2.33	3.16	1.57	2.40	2.81	1.80
23,	0.27	0.71	0.73	6.00	6.20	2.90	2.07	5.39	1.65	2.11	4.47	1.55
24,	0.22	0.55	0.72	4.63	7.75	2.93	1.91	6.38	1.65	1.94	3.61	1.39
25,	0.18	0.43	0.71	4.54	16.80	3.15	1.83	6.19	1.56	3.16	3.67	1.25
26,	0.15	0.36	0.69	4.43	13.85	3.28	1.75	5.92	1.43	2.96	3.81	1.09
27,	0.14	0.33	0.69	4.16	9.83	3.28	1.67	5.28	1.29	2.60	2.81	0.97
28,	0.09	0.32	0.68	3.90	8.17	3.50	1.65	4.61	1.13	2.24	2.41	0.89
29,	0.03	0.31	0.68	3.64	....	3.99	2.45	4.18	0.98	2.07	2.20	0.87
30,	—0.01	0.27	0.67	3.57	....	4.11	2.79	3.84	0.89	1.95	2.13	0.87
31,	0.00	....	0.67	3.51	....	3.81	....	3.62	....	1.82	2.12	....

Note.—†Maximum 16.34 ft. at 5 A. M. from hydrograph.

DAILY DISCHARGE, IN SECOND-FEET, OF WEST BRANCH SUSQUEHANNA RIVER AT WILLIAMSPORT, LYCOMING COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	546	710	997	1500	7500	22600	8680	5360	7690	12300	3380	4140
2,	546	720	975	1700	32200	16800	7970	4890	6580	12300	3690	3560
3,	546	730	1070	2150	40700	14000	7290	4450	7020	11200	5490	2970
4,	546	720	1350	2930	30000	12200	6720	4210	12700	12400	8970	2530
5,	546	720	1580	3510	21200	9860	6320	5290	16400	15700	7940	2310
6,	546	700	1820	3030	18800	8340	6100	6990	16000	16400	9460	2340
7,	538	700	1960	17200	18300	7200	6100	6380	10800	11900	8970	2420
8,	562	700	2230	†71700	16000	6810	7940	6020	8280	11400	8620	2310
9,	562	700	2270	39300	14200	7110	12800	5700	6990	37700	7840	2310
10,	562	690	2440	26500	11800	6580	16200	5800	6160	30700	6990	2380
11,	586	670	2250	14600	9000	6210	17600	5800	5340	23200	6490	2340
12,	586	660	2060	15400	8030	6100	16900	5520	4860	15900	5990	2310
13,	594	670	1980	20800	8740	5970	19200	5090	4400	14200	5830	2210
14,	602	680	1890	16100	9720	5910	14200	4600	3960	12300	5140	2270
15,	602	720	1760	12300	24000	5750	10700	4170	4030	10100	4820	2160
16,	690	986	1730	11100	55800	5650	8370	3850	4620	8370	6490	1920
17,	975	1320	1700	10000	45900	5990	6610	3820	4820	6520	5940	1960
18,	1210	1590	1680	10500	33500	7410	6210	4030	3850	5540	5570	1790
19,	1270	1990	1660	34700	25600	7320	6260	4120	3380	5540	6160	1660
20,	1200	1920	1660	49900	20300	7050	5990	3890	3090	5700	4820	1580
21,	1170	1780	1640	40000	16900	6810	5570	3760	2970	5590	4600	3010
22,	1080	1680	1640	27200	17600	6550	4820	7050	3090	4990	6050	3580
23,	997	1540	1580	18100	19000	6290	4190	15300	3260	4230	11400	3030
24,	942	1340	1560	12100	26700	6380	3820	19800	3260	3890	8430	2730
25,	898	1190	1540	11700	96600	7020	3650	18900	3070	7030	8620	2460
26,	865	1100	1520	11300	67800	7410	3470	17700	2810	6460	7500	2160
27,	854	1070	1520	10300	38200	7410	3360	14800	2530	5490	6050	1960
28,	800	1050	1500	9360	28900	8090	3260	12000	2230	4600	5020	1820
29,	740	1040	1500	8520	....	9660	5120	10300	1980	4190	4500	1790
30,	700	997	1490	8310	....	10100	5990	9160	1850	3920	4330	1790
31,	710	....	1490	8120	....	9060	....	8460	....	3620	4310	....

Note.—†Maximum = 91900 sec.-ft.

ESTIMATED MONTHLY DISCHARGE OF WEST BRANCH SUSQUEHANNA RIVER AT WILLIAMSPORT, LYCOMING COUNTY, PA.

(Drainage area 5,670 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	1270	538	760	0.13	0.15
November,	1990	660	1040	0.18	0.20
December,	2440	975	1680	0.30	0.35
1915.					
January,	91900	1500	17100	3.02	3.48
February,	96600	7500	26500	4.67	4.56
March,	22600	5650	8380	1.48	1.71
April,	19200	3260	8040	1.42	1.58
May,	19800	3760	7650	1.35	1.56
June,	16400	1820	5600	0.99	1.10
July,	37700	3620	10800	1.90	2.19
August,	11400	3380	6400	1.13	1.30
September,	4140	1580	2400	0.42	0.47
The year,	96600	538	8030	1.42	18.95

SUSQUEHANNA BASIN—STATION NO. 26.

BUFFALO CREEK NEAR LEWISBURG, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, through-truss, wooden covered bridge, known as "Nogles Bridge," about ¼ mile above the mouth of Little Buffalo Creek.

RECORDS AVAILABLE—Discharge measurements and gage heights from September 8, 1913, to September 30, 1915.

DRAINAGE AREA—107 square miles.

GAGE—A sectional chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge and is read twice daily by Wm. W. Haas.

CHANNEL—The right bank is subject to overflow during extreme stages, the left bank is not subject to overflow, and the bed is composed of gravel.

DISCHARGE MEASUREMENTS OF BUFFALO CREEK NEAR LEWISBURG, UNION COUNTY, PA.

(Drainage area 107 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.ft.	
7	Jan. 13	Critchlow,	902	6.48	2013	Surface method.
8	Jan. 14	Critchlow,	570	3.68	838	Surface method.
9	Jan. 15	Critchlow,	511	3.19	703	Surface method.
10	Sept. 16	Reckord & Gough,	67	1.42	115	0.6 method. Wading below bridge.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF BUFFALO CREEK NEAR LEWISBURG, UNION COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.75	0.80	1.05	1.68	2.03	2.80	1.28	1.50	1.50	2.58	1.28	1.98
2,	0.65	0.75	0.98	1.75	2.23	2.60	1.30	1.50	1.63	3.63	1.66	1.74
3,	0.68	0.80	0.92	1.78	2.93	2.13	1.28	1.48	2.18	3.46	1.98	1.41
4,	0.75	0.78	0.92	1.80	2.20	1.86	1.23	1.72	1.80	2.73	1.86	1.44
5,	0.65	0.78	1.00	1.75	1.93	1.76	1.30	1.98	1.70	2.46	1.68	1.54
6,	0.68	0.82	0.85	1.58	2.03	1.83	1.28	1.88	1.70	2.16	1.68	1.96
7,	0.75	0.82	1.35	7.13	2.13	1.93	1.30	1.72	1.66	1.93	1.63	2.34
8,	0.82	0.90	1.88	6.68	2.00	1.90	1.36	1.62	1.58	2.80	1.68	2.56
9,	0.75	0.88	1.80	5.40	1.86	1.88	1.28	1.58	1.50	2.23	1.58	1.81
10,	0.78	0.78	1.62	4.90	1.76	1.78	1.36	1.50	1.48	1.86	1.54	1.74
11,	0.82	0.72	1.52	5.02	1.78	1.66	1.66	1.50	1.40	1.80	1.44	1.46
12,	0.90	0.62	1.75	6.00	1.68	1.60	1.53	1.58	1.36	1.80	1.48	1.48
13,	0.88	0.72	1.80	6.72	1.66	1.60	‖1.49	1.62	1.32	1.63	1.44	1.46
14,	1.05	0.78	1.42	3.68	1.66	1.58	‖1.46	1.52	1.30	1.48	1.44	1.44
15,	1.18	0.72	1.38	3.22	3.23	1.60	‖1.43	1.38	1.33	1.38	1.41	1.34
16,	1.18	1.95	1.42	2.75	3.36	1.66	1.40	1.38	1.30	1.36	1.38	1.39
17,	0.95	1.88	1.32	2.60	2.96	1.76	1.32	1.45	1.28	1.30	1.41	1.41
18,	0.85	1.38	1.28	3.70	2.78	1.68	1.40	1.35	1.28	1.28	1.28	1.38
19,	0.82	0.75	*1.38	4.35	2.60	1.63	1.58	1.28	1.66	1.30	1.38	1.81
20,	0.72	0.85	1.58	3.30	2.23	1.60	1.45	1.28	2.16	1.30	1.44	1.94
21,	0.80	0.98	1.58	2.65	2.26	1.66	1.35	1.65	1.66	1.30	2.16	1.84
22,	0.72	0.95	1.60	2.38	2.26	1.76	1.25	2.32	1.73	1.40	2.64	1.76
23,	0.78	0.98	1.52	2.55	2.93	1.73	1.22	2.28	1.66	1.30	1.48	1.56
24,	0.68	0.85	1.42	2.42	†4.36	1.56	1.25	2.18	1.58	1.26	1.41	1.54
25,	0.62	0.82	1.42	2.05	4.63	1.50	1.38	2.30	1.46	1.23	1.31	1.41
26,	0.75	0.92	1.48	2.05	3.86	1.48	1.30	1.82	1.46	1.43	1.31	1.21
27,	0.72	0.85	1.48	1.95	2.88	1.50	1.30	1.68	1.38	1.48	1.44	1.31
28,	0.80	0.80	1.52	1.72	2.68	1.48	1.55	1.62	1.26	1.23	1.81	1.28
29,	0.82	0.78	1.55	1.68	....	1.50	1.52	1.70	1.23	1.30	2.44	1.31
30,	0.82	0.98	1.60	1.50	....	1.36	1.50	1.80	1.30	1.26	2.48	1.26
31,	0.88	....	1.62	1.55	....	1.30	....	1.70	....	1.26	2.48	....

Notes.—*Creek frozen December 19, 1914, to January 6, 1915, inclusive; ice gorged above and below January 8 to 10, 1915, inclusive. †Maximum 5.23 ft. at 5 P. M. ‖Interpolated.

SUSQUEHANNA BASIN—STATION NO. 27.

WEST BRANCH SUSQUEHANNA RIVER AT LEWISBURG, PA.

DESCRIPTION OF STATION.

LOCATION—At six span, steel, through-truss, highway bridge at Market Street, Lewisburg, Union County.

RECORDS AVAILABLE—Gage heights from September 21, 1913, to September 30, 1915. For other records on this river see West Branch Susquehanna River at Bower, West Branch Susquehanna River at Clearfield, West Branch Susquehanna River at Renovo and West Branch Susquehanna River at Williamsport; also West Branch Susquehanna River at Allenwood in the 1910-11 Report of the Water Supply Commission.

DRAINAGE AREA—6,830 square miles.

GAGE—A gage, whose elevation of zero is arbitrary, is painted on the first pier from the right abutment and is read twice daily by T. E. Irland.

CHANNEL—The right bank is high and steep, the left bank is of medium height and liable to overflow, and the bed is composed of gravel.

REMARKS—This station is maintained for flood warning purposes only.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF WEST BRANCH SUSQUEHANNA RIVER AT LEWISBURG, UNION COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	−0.25	0.00	0.00	0.75	1.50	5.50	2.25	1.88	2.00	2.88	1.00	1.25
2,	−0.25	0.00	0.00	0.75	5.38	4.62	2.00	1.75	2.00	3.75	1.00	1.25
3,	−0.25	0.00	0.00	0.75	8.00	3.88	2.00	1.75	2.25	3.88	1.62	1.25
4,	−0.25	0.00	0.00	0.75	7.00	3.38	2.00	1.75	3.00	4.25	2.50	1.00
5,	−0.25	0.00	0.25	1.00	5.50	3.12	1.75	2.00	3.62	4.50	2.75	0.75
6,	−0.25	0.00	0.25	1.00	4.62	2.75	1.75	2.25	3.50	4.50	3.25	0.88
7,	−0.25	0.00	0.62	6.12	4.38	2.62	1.75	2.00	2.88	3.50	3.38	1.00
8,	−0.25	0.00	1.50	13.25	4.00	2.50	1.75	1.88	2.50	3.75	2.75	1.00
9,	−0.25	0.00	1.00	9.88	3.62	2.38	1.88	1.75	2.12	8.12	2.75	1.00
10,	−0.25	0.00	1.00	6.62	2.88	2.12	2.62	1.75	1.88	‡8.17	2.62	1.00
11,	−0.25	0.00	0.75	4.88	2.62	2.00	4.12	1.75	1.50	5.88	2.12	1.00
12,	−0.25	0.00	0.75	4.62	2.50	2.00	4.75	1.75	1.00	5.00	2.00	0.75
13,	−0.25	0.00	0.75	8.38	2.62	2.00	4.38	1.75	1.00	4.25	2.00	0.75
14,	−0.25	0.00	0.75	5.88	3.12	1.75	3.62	1.50	1.00	3.75	2.00	0.75
15,	−0.25	0.00	0.75	4.50	5.62	1.75	2.88	1.25	1.00	3.62	1.88	0.75
16,	0.00	0.00	*0.75	3.88	10.25	1.75	2.62	1.00	1.00	2.75	1.50	0.75
17,	0.00	0.00	0.50	3.38	10.12	2.00	2.25	1.00	1.00	2.25	1.25	0.75
18,	0.25	0.75	0.50	3.50	7.88	2.00	2.00	1.00	1.00	2.00	1.25	0.75
19,	0.50	1.00	0.50	7.38	6.25	2.00	1.75	1.00	0.75	2.00	1.00	0.75
20,	0.50	1.00	0.25	10.50	5.38	2.00	1.75	1.00	0.75	1.88	0.75	0.75
21,	0.25	0.75	0.25	8.62	4.75	2.00	1.75	1.00	0.75	1.62	0.88	0.75
22,	0.25	0.75	0.25	6.50	4.75	2.00	1.50	1.88	1.00	1.50	2.00	1.25
23,	0.25	0.75	0.25	5.12	4.75	2.00	1.25	4.38	1.00	1.50	2.75	1.00
24,	0.00	0.75	0.25	4.12	6.12	2.00	1.25	4.75	1.00	1.50	2.75	1.00
25,	0.00	0.75	0.50	3.75	†13.88	2.00	1.25	4.75	1.00	1.50	2.75	1.00
26,	0.00	0.50	0.50	3.38	13.50	2.25	1.00	4.62	1.00	1.50	2.38	0.75
27,	0.00	0.50	0.50	2.88	9.88	2.62	1.00	4.25	0.88	1.50	2.00	0.62
28,	0.00	0.25	0.75	2.50	7.12	2.75	1.50	3.62	0.75	1.50	1.62	0.50
29,	0.00	0.25	0.75	2.25	....	2.75	2.00	3.12	0.75	1.50	1.75	0.50
30,	0.00	0.00	0.75	1.88	....	2.75	2.00	2.62	0.50	1.12	1.75	0.25
31,	0.00	....	0.75	1.50	....	2.50	....	2.25	....	1.00	1.62	....

Notes.—*River frozen December 16, 1914, to noon of January 7, 1915, inclusive. †Maximum 14.75 ft. at 5 P. M. ‡Maximum 8.75 ft. at 3 P. M.

SUSQUEHANNA BASIN—STATION NO. 28.

SUSQUEHANNA RIVER AT SELINSGROVE, PA.

DESCRIPTION OF STATION.

LOCATION—At Pennsylvania Railroad Bridge between Selinsgrove Junction and Selinsgrove, Snyder County.

RECORDS AVAILABLE—Daily gage heights from March 19, 1914, to September 30, 1915. For other records on this river see Susquehanna River at Harrisburg; also Susquehanna River at McCalls Ferry in the 1910-11 Report of the Water Supply Commission.

DRAINAGE AREA—18,500 square miles.

GAGE—A gage, whose elevation of zero is 411.6 feet above mean sea level, is painted on the west side of the second pier from the right or east bank and is read twice daily by H. E. Richter.

CHANNEL—Both banks are high, and the bed is rocky.

REMARKS—Only gage heights are obtained at this station, which are used for flood warning purposes only. The U. S. Weather Bureau has observed gage heights at this station from October 1, 1892.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF SUSQUEHANNA RIVER AT SELINSGROVE, SNYDER COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	—0.20	—0.20	0.10	1.15	2.75	6.40	2.45	2.75	2.05	1.15	1.90	2.15
2,	—0.20	—0.20	0.10	1.00	4.90	5.45	2.25	2.60	2.00	2.70	2.00	2.00
3,	—0.20	—0.20	0.20	1.00	6.75	5.00	2.10	2.50	2.05	3.40	2.25	1.85
4,	—0.20	—0.20	0.30	0.90	6.25	4.70	2.00	2.40	2.25	4.90	3.70	1.70
5,	—0.20	—0.20	0.30	1.15	5.85	3.75	2.00	2.55	2.55	5.20	5.35	1.55
6,	—0.20	—0.20	0.40	1.35	4.80	3.35	1.90	2.75	2.50	5.10	6.10	1.40
7,	—0.20	—0.20	0.75	2.85	4.75	2.95	2.00	2.90	2.10	4.55	6.15	1.30
8,	—0.10	—0.20	1.20	†9.55	4.50	2.85	2.40	2.75	1.75	4.30	5.75	1.40
9,	—0.10	—0.20	1.25	9.85	4.05	2.75	2.85	2.60	1.60	6.20	4.90	1.40
10,	—0.20	—0.20	1.10	7.40	3.75	2.70	3.65	2.50	1.50	10.50	4.15	1.20
11,	—0.20	—0.20	1.10	5.90	3.45	2.55	4.30	2.40	1.35	8.30	3.60	1.15
12,	—0.20	—0.20	1.00	5.15	3.05	2.50	5.25	2.30	1.30	6.75	3.45	1.05
13,	—0.20	—0.20	0.90	7.80	2.95	2.40	5.70	2.20	1.20	5.85	3.15	1.10
14,	—0.10	—0.20	0.90	7.00	3.35	2.40	5.45	2.05	1.10	5.25	2.90	1.00
15,	—0.01	—0.15	0.70	5.90	4.70	2.40	4.60	1.85	1.10	4.95	2.55	1.00
16,	—0.05	0.00	0.50	5.15	8.85	2.30	3.70	1.80	1.15	4.60	2.45	0.90
17,	0.10	0.15	0.55	4.65	10.25	2.30	3.25	1.70	1.20	3.65	2.25	1.80
18,	0.20	0.45	0.50	4.50	8.70	2.40	3.00	1.70	1.15	3.20	2.05	1.75
19,	0.10	0.45	0.50	6.40	7.05	2.40	2.65	1.60	1.10	3.25	1.85	1.60
20,	0.10	0.40	0.85	9.75	5.80	2.25	2.45	1.60	1.05	3.10	1.70	1.65
21,	0.10	0.40	0.80	9.00	5.05	2.10	2.25	1.70	1.00	2.60	1.60	1.85
22,	0.10	0.40	1.05	7.65	4.85	2.00	2.20	2.25	1.00	2.25	2.25	2.00
23,	0.00	0.40	1.05	6.05	4.80	2.00	2.10	3.15	1.05	2.10	3.60	1.95
24,	0.00	0.35	1.50	5.20	5.40	2.10	2.00	4.00	1.05	2.00	4.25	1.65
25,	0.00	0.25	1.50	4.65	11.55	2.20	1.90	3.85	1.00	1.90	3.90	1.45
26,	0.00	0.20	1.40	4.25	13.45	2.20	1.80	3.65	0.90	1.80	3.40	1.30
27,	0.00	0.15	1.40	3.60	11.25	2.55	1.80	3.45	0.90	1.85	2.75	1.25
28,	0.00	0.10	1.20	3.30	8.25	2.70	2.00	3.05	0.80	2.15	2.40	1.05
29,	—0.10	0.10	1.30	3.20	....	2.80	1.95	2.70	0.75	2.20	2.25	1.00
30,	—0.10	0.10	1.55	3.10	....	2.80	2.40	2.50	0.75	2.15	2.50	1.00
31,	—0.20	....	1.40	3.00	....	2.70	....	2.20	....	2.00	2.35	....

Note.—†Maximum 10.80 ft. at midnight from hydrograph.

SUSQUEHANNA BASIN—STATION NO. 29.

RAYSTOWN BRANCH JUNIATA RIVER AT SAXTON, PA.

DESCRIPTION OF STATION.

LOCATION—At two span, steel, through-truss, highway bridge between Stonestown and Saxton Furnace, Bedford County.

RECORDS AVAILABLE—Discharge complete from August 31, 1911, to September 30, 1915.

DRAINAGE AREA—790 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge and is read twice daily by D. R. Jenkins.

CHANNEL—Both banks are high and only overflow in extreme stages, and the bed is composed of sand, gravel and stones.

REMARKS—The discharge from August 31, 1911, to September 30, 1914, has been revised due to the reconstruction of the discharge curve.

DISCHARGE MEASUREMENTS OF RAYSTOWN BRANCH JUNIATA RIVER AT SAXTON, BEDFORD COUNTY, PA.

(Drainage area 790 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec. ft.	
20	June 3	Reckord, ...	3187	11.46	20621	Surface method.
21	June 4	Reckord, ...	2770	10.01	15309	Surface method.
22	June 4	Reckord, ...	2653	9.68	14206	Surface method.
23	June 4	Reckord, ...	2476	9.06	12990	Surface method.
24	June 4	Reckord, ...	2387	8.74	12001	Surface method.
25	June 5	Reckord, ...	1617	6.14	5940	Surface method.
26	Aug. 27	Bowen & Taylor, ...	263	1.50	319	0.6 method.

DISCHARGE TABLE FOR RAYSTOWN BRANCH JUNIATA RIVER AT SAXTON, BEDFORD COUNTY, PA., FROM AUGUST 31, 1911.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
0.70	130	3.00	1360	.30	4830	.60	9650	.90	15640
.80	139	.10	1480	.40	5020	.70	9880	10.00	15940
.90	150	.20	1600	.50	5210	.80	10120	.10	16240
1.00	164	.30	1720	.60	5400	.90	10360	.20	16550
.10	181	.40	1840	.70	5600	8.00	10600	.30	16860
.20	200	.50	1970	.80	5800	.10	10840	.40	17170
.30	223	.60	2100	.90	6000	.20	11080	.50	17490
.40	250	.70	2230	6.00	6200	.30	11330	.60	17810
.50	280	.80	2370	.10	6400	.40	11580	.70	18130
.60	316	.90	2510	.20	6600	.50	11830	.80	18460
.70	356	4.00	2650	.30	6810	.60	12080	.90	18790
.80	398	.10	2800	.40	7020	.70	12340	11.00	19130
.90	442	.20	2950	.50	7230	.80	12600	.10	19470
2.00	494	.30	3100	.60	7440	.90	12860	.20	19810
.10	552	.40	3260	.70	7650	9.00	13120	.30	20160
.20	620	.50	3420	.80	7860	.10	13390	.40	20510
.30	695	.60	3590	.90	8080	.20	13660	.50	20870
.40	775	.70	3760	7.00	8300	.30	13930	.60	21230
.50	860	.80	3930	.10	8520	.40	14210	.70	21590
.60	950	.90	4100	.20	8740	.50	14490	.80	22960
.70	1050	5.00	4280	.30	8960	.60	14770	.90	22330
.80	1150	.10	4460	.40	9190	.70	15060	12.00	22700
.90	1255	.20	4640	.50	9420	.80	15350		

Note.—Due to additional discharge measurements the curve has been reconstructed and this table supersedes that published in the 1914 report.

NOTE—Due to change in above table, the daily discharge from August 31, 1911, to September 30, 1914, has been revised and republished in this report.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF RAYSTOWN BRANCH JUNIATA RIVER AT SAXTON, BEDFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1911.

DAY.	AUG.	SEPT.
1,		5.94
2,		3.82
3,		2.96
4,		2.40
5,		2.06
6,		2.03
7,		2.52
8,		1.95
9,		2.87
10,		4.64
11,		3.42
12,		2.98
13,		2.40
14,		2.06
15,		3.72
16,		7.08
17,		5.20
18,		3.88
19,		3.27
20,		2.92
21,		2.54
22,		2.41
23,		2.48
24,		2.07
25,		1.92
26,		1.80
27,		1.68
28,		1.80
29,		2.44
30,		3.62
31,	5.92	

DAILY MEAN GAGE HEIGHTS, IN FEET, OF RAYSTOWN BRANCH JUNIATA RIVER AT SAXTON, BEDFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1912.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	2.40	1.96	1.71	4.10	....	3.18	4.05	3.73	1.75	1.79	2.22	1.26
2,	2.88	1.88	1.64	3.36	....	2.66	3.92	3.49	1.84	1.62	2.09	1.26
3,	3.08	1.72	1.66	3.20	....	2.38	4.28	3.21	1.96	1.49	2.09	1.81
4,	2.86	1.70	1.64	2.95	....	2.38	4.00	2.97	1.74	1.36	1.99	2.66
5,	2.78	1.64	1.57	2.48	....	2.22	3.42	2.77	1.56	1.47	1.82	2.58
6,	2.32	1.72	1.53	*	....	2.12	3.15	2.59	1.50	1.36	1.66	2.16
7,	2.28	2.38	1.47	....	....	2.06	2.95	2.81	1.42	1.29	1.58	1.88
8,	2.68	2.65	1.53	....	....	2.24	2.95	4.24	1.38	1.31	1.51	1.81
9,	2.22	2.50	1.55	....	....	2.80	2.72	3.63	1.40	1.27	1.48	1.71
10,	2.16	2.50	1.47	....	....	2.72	2.52	3.22	1.60	1.35	1.67	1.52
11,	2.14	2.18	1.48	....	....	2.19	2.42	2.89	1.28	1.39	1.79	1.41
12,	2.25	2.09	1.49	....	....	2.20	2.32	3.03	1.23	1.33	1.61	1.32
13,	2.06	2.02	1.48	....	....	2.47	2.34	§8.09	1.18	1.32	1.69	1.26
14,	1.86	2.10	1.45	....	....	3.35	2.40	5.34	1.20	1.29	1.75	1.22
15,	1.85	1.92	1.83	....	....	†6.69	2.32	4.59	1.19	1.35	1.53	1.18
16,	1.84	1.94	3.59	....	....	7.14	2.18	4.69	2.23	1.27	1.41	1.24
17,	1.88	1.83	5.11	....	....	5.00	2.28	7.71	‡‡5.43	1.45	1.32	1.22
18,	2.85	2.01	4.13	....	....	4.38	‡4.78	5.54	3.86	3.88	1.28	1.28
19,	3.68	2.51	3.38	....	....	4.28	4.41	4.49	2.88	5.12	1.35	1.21
20,	3.12	2.35	3.01	....	....	5.12	3.66	3.89	2.38	3.49	1.63	1.22
21,	2.84	2.34	2.68	....	....	6.95	3.30	3.30	2.10	4.42	1.71	1.18
22,	2.12	2.29	2.69	....	....	8.24	3.20	3.04	2.03	¶6.09	1.65	1.16
23,	3.05	2.16	3.25	....	....	5.90	3.24	2.77	1.96	4.32	1.45	1.31
24,	2.79	2.04	3.58	....	....	5.25	2.94	2.57	1.80	5.27	1.33	1.76
25,	2.62	2.04	3.39	....	....	5.40	2.76	2.34	2.13	4.62	1.35	5.06
26,	2.45	1.98	3.29	....	5.97	4.50	2.75	2.17	2.06	4.12	1.29	4.94
27,	2.34	1.90	4.73	....	7.72	4.16	3.35	2.05	1.98	3.39	1.22	4.68
28,	2.30	1.86	4.68	....	5.13	3.96	3.55	2.01	1.80	2.85	1.19	3.40
29,	2.18	1.84	3.63	....	4.07	4.96	3.38	2.03	1.70	2.55	1.23	2.98
30,	2.07	1.87	3.57	....	....	5.60	3.72	2.01	2.10	3.17	1.19	2.68
31,	2.01	....	3.37	....	....	4.78	....	1.94	....	2.59	1.29	....

Notes.—*River frozen January 6 to February 25, 1912; gorged January 25 to February 1, and February 22 to 25, 1912. †Maximum 8.74 ft. at 7 a. m. ‡Maximum 5.05 ft. at 5:45 p. m. §Maximum 8.59 ft. at 7:45 a. m. ‡‡Maximum 5.88 ft. at 7:45 a. m. ¶Maximum 6.52 ft. at 6:15 a. m.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF RAYSTOWN BRANCH JUNIATA RIVER AT SAXTON, BEDFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1913.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	2.21	1.45	1.27	3.01	2.45	2.62	3.20	2.13	4.08	1.18	1.16	0.77
2,	2.08	1.37	1.33	2.59	2.01	2.47	3.00	2.07	3.53	1.18	1.18	0.87
3,	1.98	1.23	1.37	2.53	2.03	2.32	3.04	1.95	3.13	1.22	1.04	0.74
4,	1.71	1.30	1.57	3.91	1.99	2.28	2.92	1.95	2.88	1.16	1.58	0.79
5,	1.65	1.37	1.37	3.26	1.93	2.14	2.70	1.81	2.53	1.19	1.50	0.81
6,	1.54	1.33	1.65	2.96	2.01	2.04	2.50	1.85	2.28	2.29	0.94	0.74
7,	1.45	1.35	2.05	3.61	1.96	2.02	2.30	1.85	2.21	1.74	1.06	0.97
8,	1.41	†3.90	2.10	5.63	2.03	1.90	2.24	1.73	2.11	1.54	1.22	1.11
9,	1.42	3.05	2.03	6.46	2.79	1.87	2.07	1.88	2.08	1.42	1.22	1.11
10,	1.74	2.79	1.87	4.87	2.71	1.90	2.04	1.69	1.88	1.56	0.94	1.51
11,	2.35	2.37	1.53	3.91	2.36	1.87	2.17	1.48	1.71	1.66	1.00	1.34
12,	1.70	2.25	1.33	4.83	2.11	2.24	2.40	1.51	1.75	1.56	1.02	1.31
13,	1.58	2.14	1.23	4.91	2.03	2.17	2.47	1.53	1.53	1.42	1.12	1.29
14,	1.48	2.00	1.33	4.26	1.99	2.24	2.17	1.57	1.51	1.26	1.08	1.17
15,	1.34	1.93	1.43	3.53	1.86	2.14	2.50	1.53	1.51	1.24	1.05	1.17
16,	1.24	1.87	1.63	3.29	1.89	2.08	3.50	1.59	1.45	1.19	1.18	1.21
17,	1.12	1.77	1.50	3.43	2.03	2.54	4.10	1.63	1.43	1.22	1.05	1.19
18,	1.18	1.63	1.48	3.33	2.01	2.52	3.72	1.65	1.45	1.22	1.05	1.27
19,	1.13	1.50	1.58	3.13	1.99	2.57	3.17	1.53	1.53	1.29	0.95	1.29
20,	1.11	1.45	1.55	3.21	1.81	2.77	2.62	1.51	1.45	1.29	1.00	1.29
21,	1.24	1.55	1.50	3.01	1.69	2.70	2.32	1.51	1.35	1.32	1.05	1.49
22,	1.24	1.53	1.40	2.81	1.69	2.47	2.27	1.51	1.43	1.10	0.95	§2.17
23,	1.46	1.35	1.10	2.69	1.81	2.30	2.24	2.11	1.45	1.16	0.99	2.17
24,	1.64	1.37	1.18	2.83	1.86	2.20	2.12	4.12	1.43	1.16	0.95	1.67
25,	1.94	1.43	1.30	3.09	1.41	2.16	2.04	3.61	††1.90	1.10	0.92	1.59
26,	1.88	1.35	1.38	2.91	1.51	2.67	1.97	3.88	††1.85	1.08	0.98	1.54
27,	1.71	1.35	1.50	2.76	1.73	‡5.57	2.04	7.21	1.61	1.09	0.90	1.41
28,	1.62	1.35	1.32	2.66	2.06	5.90	2.10	10.01	1.48	1.08	0.92	1.27
29,	1.54	1.33	1.18	2.50	....	4.70	2.02	7.15	1.45	1.16	0.90	1.29
30,	1.58	1.27	1.60	2.46	....	3.92	2.10	6.28	1.23	1.14	0.92	1.27
31.	1.54	....	2.30	2.59	....	3.52	....	4.91	....	1.12	0.85	....

Notes.—†Maximum 4.55 ft. at 8 a. m. ‡Maximum 6.52 ft. at 5 p. m. §Maximum 2.74 ft. at 5 p. m. ††Estimated.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF RAYSTOWN BRANCH JUNIATA RIVER AT SAXTON, BEDFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	2.11	2.33	2.25	2.20	6.99	3.19	5.34	3.29	1.36	1.42	0.87	0.82
2,	2.69	2.20	2.27	2.18	5.20	3.09	4.89	3.03	1.33	1.42	0.89	0.87
3,	2.34	2.13	2.27	2.25	4.53	2.89	4.69	2.83	1.33	1.25	0.87	0.87
4,	2.36	1.93	2.22	2.42	3.90	2.89	4.24	2.63	1.43	1.35	0.87	0.87
5,	1.96	1.86	2.19	3.00	3.60	2.77	3.84	3.05	1.58	1.25	0.87	0.92
6,	1.76	1.78	2.17	2.85	3.52	2.69	3.54	4.90	1.48	1.15	0.87	0.90
7,	1.63	1.76	2.52	2.65	3.30	2.69	3.24	4.33	1.36	1.12	0.82	0.90
8,	1.56	1.76	3.32	2.52	3.22	2.69	3.34	3.88	1.26	1.15	0.82	0.88
9,	1.58	3.48	3.62	2.65	2.75	2.64	3.94	4.08	1.18	1.17	0.87	0.85
10,	1.58	‡7.18	3.12	3.35	2.48	2.54	3.44	4.18	1.20	1.12	0.95	0.85
11,	1.58	4.68	2.95	3.90	2.60	2.34	3.09	3.28	1.22	1.15	0.99	0.90
12,	1.68	3.68	2.72	3.72	2.15	2.21	3.03	3.13	1.18	1.12	1.07	0.90
13,	2.06	3.38	2.55	2.80	1.78	2.24	2.94	2.96	1.18	1.15	1.07	0.90
14,	1.80	3.13	2.45	*	*	2.24	2.71	2.78	1.16	1.25	1.09	0.90
15,	1.68	2.98	2.27	....	....	2.31	2.94	2.58	1.08	1.89	1.02	0.88
16,	1.60	3.18	2.22	....	....	5.59	5.96	2.43	1.08	1.82	0.97	0.85
17,	1.50	4.68	2.12	....	....	6.99	5.14	2.26	1.03	1.65	0.92	0.85
18,	1.56	4.13	2.08	....	....	8.29	4.25	2.16	0.96	1.32	0.92	0.85
19,	1.48	3.48	2.05	....	....	6.49	3.69	2.06	0.93	1.19	0.92	0.90
20,	2.13	3.33	1.95	....	....	5.29	4.04	1.90	0.98	1.15	0.87	0.85
21,	3.18	3.03	1.88	....	....	4.24	4.89	1.90	0.98	1.05	0.82	0.85
22,	2.98	2.73	1.85	....	....	3.74	4.24	1.80	1.13	0.99	0.82	0.85
23,	2.43	2.46	1.85	....	....	3.49	3.84	1.73	1.26	0.95	0.87	0.85
24,	2.10	2.38	2.20	....	....	3.84	3.49	1.68	1.30	0.92	0.87	0.85
25,	3.68	2.23	2.75	....	....	4.04	3.34	1.66	1.48	0.92	0.87	0.90
26,	†5.23	2.18	2.95	....	....	4.89	5.09	1.58	1.63	0.89	0.87	0.90
27,	5.43	2.13	3.05	....	....	5.84	5.39	1.58	1.53	0.87	0.87	0.90
28,	4.43	2.16	2.80	....	....	5.69	4.59	1.58	1.48	0.95	0.92	0.90
29,	3.33	2.30	2.75	....	....	5.44	3.99	1.66	1.46	0.96	0.95	0.90
30,	2.78	2.36	2.75	6.18	....	4.74	3.59	1.63	1.73	0.85	0.89	0.90
31,	2.68	....	2.60	6.47	....	5.34	....	1.50	....	0.89	0.89	....

Notes.—*River frozen January 14 to 29 and February 14 to 28, 1914, inclusive. †Maximum 5.88 ft. at 5 p. m. ‡Maximum 7.88 ft. at 7:30 a. m.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF RAYSTOWN BRANCH JUNIATA RIVER AT SAXTON, BEDFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.88	0.86	0.95	1.48	2.77	3.30	1.89	1.77	4.13	1.78	1.73	1.95
2,	0.88	0.86	0.93	1.58	7.75	3.05	1.79	1.77	4.43	2.18	3.38	1.80
3,	0.88	0.81	1.00	1.63	7.05	2.75	1.79	1.67	11.45	2.33	†5.55	1.70
4,	0.83	0.81	1.05	1.55	5.02	2.55	1.69	1.67	9.61	2.33	3.88	1.60
5,	0.88	0.81	1.05	1.48	3.92	2.35	1.69	1.82	6.56	2.13	3.93	1.45
6,	0.86	0.81	1.00	1.51	3.67	2.30	1.69	1.82	4.63	1.78	2.98	1.40
7,	0.83	0.81	1.08	4.68	3.47	2.30	1.69	1.67	3.98	1.78	2.48	1.65
8,	0.83	0.84	1.10	5.93	3.32	2.30	1.79	1.57	3.63	1.68	2.23	1.95
9,	0.88	0.86	1.37	4.48	2.97	2.20	1.79	1.57	3.18	1.63	2.18	1.70
10,	0.88	0.86	1.70	3.53	2.62	2.20	1.79	1.57	2.78	1.48	2.13	1.50
11,	0.98	0.86	1.65	2.68	2.52	2.30	1.79	1.47	2.53	1.43	1.88	1.40
12,	0.93	0.86	1.55	2.01	2.82	2.40	1.79	1.37	2.38	1.48	1.73	1.40
13,	0.93	0.86	1.45	2.83	4.07	2.30	1.69	1.47	2.78	1.58	1.68	1.30
14,	0.98	0.86	1.25	3.43	4.87	2.35	1.69	1.57	2.98	1.53	1.88	1.30
15,	1.03	0.88	0.97	3.08	6.78	2.55	1.69	1.47	2.78	1.43	1.63	1.25
16,	1.10	1.11	1.05	2.58	7.54	2.70	1.59	1.47	2.23	1.38	1.48	1.20
17,	1.18	1.18	1.07	2.43	5.92	2.70	1.59	1.52	2.03	1.38	1.38	1.10
18,	1.28	1.24	1.10	2.58	4.97	2.55	1.54	1.72	1.83	1.28	1.38	1.00
19,	1.23	1.18	1.05	6.41	4.32	2.45	1.49	1.72	1.68	1.28	1.38	1.65
20,	1.18	1.11	1.05	5.63	3.82	2.30	1.49	1.57	1.73	1.28	1.28	2.50
21,	0.98	1.06	1.03	4.93	3.92	2.30	1.49	1.97	1.73	1.28	1.28	2.10
22,	0.93	1.01	1.00	3.53	4.62	2.20	1.49	5.72	1.58	1.28	3.78	1.80
23,	0.93	0.96	1.00	3.18	4.32	2.15	1.39	5.17	1.58	1.38	2.48	1.65
24,	0.88	1.06	1.00	2.98	4.87	2.10	1.49	4.42	1.53	1.38	1.98	1.50
25,	0.88	1.01	1.23	2.47	7.42	2.10	1.49	3.92	1.48	1.63	1.68	1.40
26,	0.88	0.96	1.30	2.31	5.42	2.10	1.49	3.52	1.48	1.33	1.53	1.30
27,	0.83	0.91	1.35	2.18	4.32	2.00	1.49	3.17	1.38	1.28	1.44	1.30
28,	0.88	0.91	1.35	1.98	3.72	2.00	1.59	2.72	1.38	1.28	1.40	1.20
29,	0.88	0.91	1.35	1.83	....	2.00	1.69	2.62	1.28	1.18	1.65	1.10
30,	0.88	0.91	1.35	1.83	....	2.00	1.89	3.02	1.33	1.18	2.40	1.10
31,	0.88	....	1.45	2.08	....	1.90	....	4.72	....	1.18	2.15	....

Note.—†Maximum 7.08 ft. at noon.

DAILY DISCHARGE, IN SECOND-FEET, OF RAYSTOWN BRANCH JUNIATA RIVER AT SAXTON, BEDFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1911.

DAY.	AUG.	SEPT.
1,		6080
2,		2400
3,		1320
4,		775
5,		529
6,		511
7,		878
8,		468
9,		1220
10,		3660
11,		1870
12,		1340
13,		775
14,		529
15,		2260
16,		8480
17,		4640
18,		2480
19,		1680
20,		1280
21,		896
22,		784
23,		843
24,		535
25,		452
26,		398
27,		348
28,		398
29,		809
30,		2130
31,	6040	

DAILY DISCHARGE, IN SECOND-FEET, OF RAYSTOWN BRANCH JUNIATA RIVER AT SAXTON, BEDFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1912.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	775	473	360	2800	650	1580	2720	2270	377	394	685	214
2,	1230	433	332	1790	650	1010	2540	1960	416	324	546	214
3,	1460	364	340	1600	650	759	3070	1610	473	277	546	402
4,	1210	356	332	1310	650	759	2650	1330	378	239	489	1010
5,	1130	332	305	843	650	635	1870	1120	302	271	407	932
6,	711	364	291	*990	650	566	1540	941	280	239	340	593
7,	680	759	271	990	650	529	1310	1160	256	221	309	433
8,	1030	1000	291	990	650	650	1310	3010	245	226	254	402
9,	635	860	298	990	650	1150	1070	2140	250	216	274	360
10,	598	860	271	990	650	1070	878	1620	316	256	344	287
11,	579	606	274	990	650	613	792	1240	218	247	394	253
12,	658	546	277	990	650	620	711	1400	207	251	320	228
13,	529	506	274	990	650	834	727	§10800	196	228	352	214
14,	424	552	265	990	650	1780	775	4910	200	221	277	205
15,	420	452	411	990	650	†7630	711	3570	198	236	291	196
16,	416	463	2090	990	650	8610	606	3740	642	216	253	209
17,	433	411	4480	990	650	4280	680	9900	‡‡15080	265	228	205
18,	1200	500	2840	990	650	3230	‡3900	5290	2450	2480	218	218
19,	2200	869	1820	990	650	3070	3280	3400	1230	4500	236	202
20,	1500	735	1370	990	650	4500	2180	2500	759	1960	325	205
21,	1190	727	1030	990	650	8190	1720	1830	552	3290	360	196
22,	566	688	1040	990	650	11200	1600	1410	511	¶6380	336	192
23,	1420	593	1660	990	650	6000	1650	1120	473	3130	265	226
24,	1140	517	2070	990	650	4740	1300	923	398	4770	231	381
25,	970	517	1830	850	650	5020	1110	727	572	3620	236	4390
26,	818	484	1710	850	6140	3420	1100	600	529	2830	221	4170
27,	727	442	3810	850	9930	2890	1780	523	484	1830	205	3730
28,	695	424	3730	850	4510	2590	2040	500	398	1200	198	1840
29,	606	416	2140	850	2760	4210	1820	511	356	905	207	1340
30,	535	429	2040	850	....	5400	2260	500	552	1560	198	1030
31,	500	....	1800	850	....	3900	....	463	....	941	221	....

Notes.—*River frozen January 6 to February 25 1912; gorged January 25 to February 1, and February 22 to 25, 1912; and discharge estimated from Frankstown Branch Juniata River at Huntingdon. †Maximum=12400 sec.-ft. ‡Maximum=4370 sec.-ft. §Maximum=12100 sec.-ft. ‡‡Maximum=5960 sec.-ft. ¶Maximum=7270 sec.-ft.

DAILY DISCHARGE, IN SECOND-FEET, OF RAYSTOWN BRANCH JUNIATA RIVER AT SAXTON, BEDFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1913.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	628	265	216	1370	818	970	1600	572	2770	196	192	136
2,	540	242	231	941	500	834	1360	535	2010	196	196	147
3,	484	207	242	887	511	711	1410	468	1520	205	171	134
4,	360	223	305	2520	489	680	1280	468	1230	192	309	138
5,	336	242	242	1670	458	579	1050	402	887	198	280	140
6,	294	231	336	1320	500	517	860	420	680	688	156	134
7,	268	236	523	2110	473	506	695	420	628	373	174	160
8,	253	†2510	552	5460	511	442	650	360	559	294	205	183
9,	256	1420	511	7150	1140	429	535	433	540	256	205	183
10,	373	1140	429	4050	1060	442	517	352	433	302	156	284
11,	735	751	291	2520	743	429	600	274	360	340	164	234
12,	356	658	231	3980	559	650	775	284	377	302	167	226
13,	303	579	207	4120	511	600	834	291	291	256	185	221
14,	274	494	231	3040	489	650	600	305	284	214	178	194
15,	234	458	259	2010	424	579	860	291	284	209	172	194
16,	209	429	328	1710	438	540	1970	312	265	198	196	202
17,	185	385	280	1880	511	896	2800	328	259	205	172	198
18,	196	328	274	1760	500	878	2260	336	265	205	172	216
19,	196	280	309	1520	489	923	1560	291	291	221	157	221
20,	183	265	298	1610	402	1120	970	284	265	221	164	221
21,	203	298	280	1870	352	1060	711	284	236	228	172	277
22,	209	291	250	1160	352	834	672	284	259	181	157	§600
23,	268	236	181	1040	402	695	650	559	265	192	163	600
24,	332	242	196	1180	424	620	566	2840	259	192	157	344
25,	463	259	223	1470	253	593	517	2110	442	181	153	312
26,	483	236	245	1270	284	1020	478	2480	420	178	161	294
27,	360	236	280	1110	369	‡5340	517	8760	320	179	150	252
28,	324	236	228	1010	529	6000	552	16000	274	178	153	216
29,	294	231	196	860	....	3760	506	8630	265	192	150	221
30,	300	216	316	826	....	2540	552	6770	207	189	153	216
31,	294	....	695	941	....	2000	....	4120	....	185	144	....

Notes.—†Maximum=3500 sec.-ft. ‡Maximum=7270 sec.-ft. §Maximum=1090 sec.-ft.

DAILY DISCHARGE, IN SECOND-FEET, OF RAYSTOWN BRANCH JUNIATA RIVER AT SAXTON, BEDFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	559	719	658	620	8280	1590	4910	1710	239	256	147	141
2,	1040	620	672	606	4640	1470	4080	1400	231	256	149	147
3,	727	572	672	658	3470	1240	3740	1180	231	212	147	147
4,	743	458	635	792	2510	1240	3010	980	259	236	147	147
5,	473	124	613	1360	2100	1120	2430	1420	309	212	147	153
6,	381	390	600	1200	2000	1040	2020	4100	274	190	147	150
7,	328	381	878	1000	1720	1040	1650	3150	239	185	141	150
8,	302	381	1740	878	1620	1040	1770	2480	214	190	141	148
9,	291	1940	2130	1000	1100	990	2570	2770	196	194	147	144
10,	309	‡8700	1500	1780	843	896	1890	2920	200	185	157	144
11,	309	3730	1310	2510	950	727	1470	1700	205	190	163	150
12,	348	2200	1070	2260	586	628	1400	1520	196	185	176	150
13,	529	1820	905	1150	390	650	1300	1320	196	190	176	150
14,	398	1520	818	*900	*300	650	1060	1130	192	212	179	150
15,	348	1340	672	900	300	703	1300	932	178	438	167	148
16,	316	1580	635	900	300	5330	6120	800	178	407	160	144
17,	280	3730	566	900	300	8280	4530	665	169	386	153	144
18,	302	2840	540	900	300	11300	3020	593	158	228	153	144
19,	274	1940	523	900	300	7210	2220	529	154	198	153	150
20,	572	1760	468	900	300	4810	2710	442	161	190	147	144
21,	1580	1400	433	900	300	3010	4060	442	161	172	141	144
22,	1290	1080	420	900	300	2290	3010	398	187	163	141	144
23,	800	826	420	900	300	1960	2430	369	214	157	147	144
24,	552	759	620	900	300	2430	1960	343	223	153	147	144
25,	2200	642	1100	900	300	2710	1770	340	274	153	147	150
26,	†4790	606	1310	900	300	4080	4440	309	328	149	147	150
27,	5080	572	1420	900	300	5880	5000	302	291	147	147	150
28,	3310	593	1150	900	300	5580	3570	303	274	157	153	150
29,	1760	695	1100	900	....	5100	2640	340	268	157	157	150
30,	1130	748	1100	6560	....	3830	2090	328	369	144	149	150
31,	980	....	950	7170	....	4910	....	280	....	149	149	....

Notes.—*River frozen January 14 to 29 and February 14 to 28, 1914, inclusive, and discharge estimated from climatological records. †Maximum=5960 sec.-ft. ‡Maximum=10300 sec.-ft.

DAILY DISCHARGE, IN SECOND-FEET, OF RAYSTOWN BRANCH JUNIATA RIVER AT SAXTON, BEDFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	148	146	157	274	1120	1720	438	385	2840	390	369	468
2,	148	146	154	309	10000	1420	394	385	3310	606	1820	398
3,	148	140	164	328	8410	1100	394	344	20700	719	†5300	356
4,	148	140	172	298	4320	905	352	344	14800	719	2480	316
5,	148	140	172	274	2540	735	352	407	7360	572	2550	265
6,	146	140	164	284	2190	695	352	407	3640	390	1340	250
7,	142	140	169	3730	1930	695	352	344	2620	390	843	336
8,	142	143	181	6060	1740	695	394	305	2140	348	642	468
9,	148	146	242	3390	1330	620	394	305	1580	328	606	356
10,	148	146	356	2010	970	620	394	305	1130	274	572	280
11,	161	146	336	1030	878	695	394	271	887	259	433	250
12,	154	146	298	500	1170	775	394	242	759	274	369	250
13,	154	146	265	1180	2760	695	352	271	1130	309	348	223
14,	161	146	212	1880	4050	735	352	305	1340	291	433	223
15,	169	148	160	1460	7820	905	352	271	1130	259	328	212
16,	181	183	172	932	9510	1050	312	271	642	245	274	200
17,	196	196	176	800	6040	1050	312	287	511	245	245	181
18,	218	209	181	932	4230	905	294	364	411	218	245	164
19,	207	196	172	7040	3130	818	277	364	348	218	245	336
20,	196	183	172	5460	2400	695	277	305	369	218	218	860
21,	161	174	169	4150	2540	695	277	478	369	218	218	552
22,	154	166	164	2010	3620	620	277	5640	309	218	2340	398
23,	154	158	164	1580	3130	586	247	4590	309	245	843	336
24,	143	174	164	1340	4050	552	277	3290	291	245	484	280
25,	148	166	207	834	9240	552	277	2540	274	328	348	250
26,	148	158	223	703	5060	552	277	2000	274	231	291	223
27,	142	151	236	606	3130	494	277	1560	245	218	262	223
28,	143	151	236	484	2260	494	312	1070	245	218	250	200
29,	148	151	236	411	....	494	352	970	218	196	336	181
30,	148	151	236	411	....	494	438	1380	231	196	775	181
31,	148	....	265	540	....	442	....	3790	....	196	586	....

Note.—†Maximum—8480 sec.-ft.

ESTIMATED MONTHLY DISCHARGE OF RAYSTOWN BRANCH JUNIATA RIVER AT SAXTON, BEDFORD COUNTY, PA.

(Drainage area 790 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1911.					
September,	8480	348	1690	2.14	2.39
a1911.					
October,	2200	416	870	1.10	1.27
November,	1000	332	556	0.70	0.78
December,	4480	265	1290	1.63	1.88
1912.					
January,	2800	....	1070	1.35	1.57
February,	9980	....	1360	1.72	1.86
March,	12400	529	3270	4.14	4.77
April,	4370	606	1660	2.10	2.34
May,	12100	463	2360	2.99	3.45
June,	5960	196	643	0.81	0.90
July,	7270	216	1410	1.79	2.06
August,	635	198	318	0.40	0.46
September,	4390	192	816	1.03	1.15
The year,	12400	....	1300	1.65	22.49
1912.					
October,	735	183	328	0.42	0.48
November,	3500	207	461	0.58	0.65
December,	695	181	303	0.38	0.44
1913.					
January,	7150	826	2060	2.61	3.01
February,	1140	253	518	0.66	0.69
March,	7270	429	1220	1.55	1.79
April,	2800	478	964	1.22	1.36
May,	16000	274	1940	2.46	2.84
June,	2770	207	572	0.72	0.80
July,	688	178	237	0.30	0.35
August,	309	144	177	0.22	0.25
September,	1090	134	237	0.30	0.34
The year,	16000	134	751	0.95	13.00
b1913.					
October,	5960	274	1040	1.32	1.52
November	10300	381	1500	1.90	2.12
December,	2130	420	891	1.13	1.30
1914.					
January,	7170	....	1420	1.80	2.08
February,	8280	....	1240	1.57	1.64
March,	11300	623	3020	3.82	4.40
April,	6120	1060	2810	3.56	3.97
May,	4100	280	1150	1.46	1.68
June,	369	154	226	0.29	0.32
July,	438	144	206	0.26	0.30
August,	179	141	152	0.19	0.22
September,	153	141	147	0.19	0.21
The year,	11300	141	1150	1.46	19.76
1914.					
October,	218	142	158	0.20	0.23
November,	209	140	158	0.20	0.22
December,	356	154	206	0.26	0.30
1915.					
January,	7040	274	1650	2.09	2.41
February,	10000	878	3910	4.95	5.16
March,	1720	442	758	0.96	1.11
April,	438	247	338	0.43	0.48
May,	5640	242	1090	1.38	1.59
June,	20700	218	2350	2.98	3.32
July,	719	196	316	0.40	0.46
August,	8480	213	851	1.08	1.24
September,	860	164	307	0.39	0.44
The year,	20700	140	1010	1.28	16.96

Notes.—aRiver frozen January 6 to February 25, 1912; gorged January 25 to February 1 and February 22 to 26, 1912; and discharge estimated from Frankstown Branch Juniata River at Huntingdon.

bRiver frozen January 14 to 29 and February 14 to 28, 1914, inclusive, and discharge estimated from climatological records.

SUSQUEHANNA BASIN—STATION NO. 30.

FRANKSTOWN BRANCH JUNIATA RIVER AT HUNTINGDON, PA.

DESCRIPTION OF STATION.

LOCATION—At two span, covered wagon bridge, known as 4th Street Bridge, Huntingdon, Huntingdon County.

RECORDS AVAILABLE—Discharge complete from May 1, 1895, to September 30, 1914.

DRAINAGE AREA—See page 107.

GAGE—A staff gage, whose elevation of zero is 595.12 feet above mean sea level, is located on the left downstream corner of the pier, and is read thrice daily by Lawrence White.

CHANNEL—The right bank is low and overflows during high stages, the left bank is high and not subject to overflow, and the bed is composed of gravel with vegetable growths.

REMARKS—The gage heights and discharge at this station are not published in this report for reasons mentioned on page 106.

AUGHWICK CREEK.

SOURCE—In two branches, Little Aughwick Creek rising in northeastern Fulton County and Sideling Hill Creek in northwestern Fulton County; the junction is at Maddensville, southeastern Huntingdon County.

TRIBUTARY TO—Juniata River, 3 miles southeast of Mt. Union, Huntingdon County; elevation 526 feet.

LENGTH—Main stream, 25 miles; Little Aughwick Creek, 16 miles; Sideling Hill Creek, 24 miles, including South Fork.

DRAINAGE AREA—Total 327 square miles; Little Aughwick Creek, 54 square miles; Sideling Hill Creek, 96 square miles.

TOPOGRAPHY AND DEVELOPMENT—The two main tributaries, Little Aughwick and Sideling Hill creeks, flow through narrow valleys, the mountain sides being covered with second growth timber. Below the junction of these two streams the valley widens and farming is carried on to some extent. The principal industries in the basin are the mining of coal, lumbering and farming.

PRINCIPAL TRIBUTARIES—Little Aughwick, Sideling Hill. Three Springs and Black Log creeks.

PRECIPITATION—40 to 45 inches annually.

HYDROGRAPHIC DATA—At Pogue, from May, 1915, to date.

SUSQUEHANNA BASIN—STATION NO. 31.

AUGHWICK CREEK AT POGUE, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge 600 feet above the East Broad Top Railroad Bridge, at Pogue, Huntingdon County.

RECORDS AVAILABLE—Discharge measurements and gage heights from May 1 to September 30, 1915.

DRAINAGE AREA—167 square miles.

GAGE—A standard chain gage, whose elevation of zero is 619.04 feet above mean sea level, is located on the downstream side of the bridge and is read twice daily by C. B. Wagner.

CHANNEL—The right bank overflows at elevation 627.50 feet, the left bank is high and not subject to overflow, and the bed is composed of gravel.

DISCHARGE MEASUREMENTS OF AUGHWICK CREEK AT POGUE, HUNTINGDON COUNTY, PA.

(Drainage area 167 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec. ft.	
1	May 31	Butler, ...	536	4.90	940	0.2 and 0.8 method.
2	June 3	Butler, ...	975	9.00	5527	0.2 and 0.8 method. 22 sec.-ft added for overflow.
3	June 5	Butler, ...	595	5.30	1237	0.2 and 0.8 method.
4	June 14	Butler, ...	415	3.42	285	0.2 and 0.8 method.
5	June 24	Butler, ...	33	2.32	70	Wading below station.
6	Aug. 28	Bowen & Taylor, ...	42	2.45	67	Wading 500 ft. below bridge.
7	Sept. 6	Butler, ...	45	2.61	121	Wading measurement.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF AUGHWICK CREEK AT POGUE, HUNTINGDON COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	5.10	4.14	2.43	‖2.07	2.70
2,	4.60	5.34	2.48	2.16	2.62
3,	2.45	†9.34	2.83	4.61	2.50
4,	2.50	6.49	2.53	3.96	2.50
5,	2.50	5.27	2.28	3.31	2.56
6,	2.40	4.64	2.18	2.71	2.65
7,	2.30	4.14	2.18	2.66	2.90
8,	2.30	3.84	2.18	2.66	2.65
9,	2.30	3.74	2.18	2.66	2.60
10,	2.30	3.24	2.28	2.66	2.50
11,	2.20	3.09	2.18	2.46	2.42
12,	2.20	2.99	2.18	2.26	2.30
13,	2.40	3.09	2.18	2.26	2.30
14,	2.40	3.40	2.18	2.26	2.30
15,	2.30	2.84	2.08	2.30	2.20
16,	2.30	2.69	2.08	2.26	2.20
17,	2.40	2.69	2.08	2.16	2.15
18,	2.50	2.59	1.98	2.16	2.10
19,	2.40	2.59	1.98	2.06	2.60
20,	2.30	2.59	1.98	1.96	2.70
21,	2.65	2.49	1.88	1.96	2.70
22,	5.30	2.39	1.83	4.98	2.70
23,	4.70	2.39	2.18	3.71	2.42
24,	4.05	2.30	2.18	3.16	2.30
25,	3.75	2.29	2.08	2.81	2.30
26,	3.45	2.29	1.98	2.66	2.25
27,	3.25	2.29	2.08	2.56	2.20
28,	3.05	2.19	1.98	2.46	2.20
29,	3.05	2.19	1.98	2.40	2.20
30,	4.85	2.09	1.98	2.30	2.15
31,	4.80	....	1.98	2.12	....

Notes.--†Maximum 10.39 ft. at 5 a. m. ‖Interpolated.

SUSQUEHANNA BASIN—STATION NO. 32.

KISHACOQUILLAS CREEK AT KULPS, PA.

DESCRIPTION OF STATION.

LOCATION—At two span, wooden, highway bridge, known as "Red Bridge" at Kulps, Mifflin County.

RECORDS AVAILABLE—Discharge complete from August 21, 1911, to September 30, 1915.

DRAINAGE AREA—190 square miles.

GAGE—A staff gage, whose elevation of zero is arbitrary, is located on the upstream face of the left abutment and is read twice daily by Thomas W. Hawke.

CHANNEL—The right bank is high but overflows during extreme stages, the left bank is high and not subject to overflow, and the bed consists of rocks, mud and gravel.

REMARKS—There is a mill dam one-half mile below the bridge. The discharge from August 21, 1911, to September 30, 1914, has been revised due to the reconstruction of the discharge curve.

DISCHARGE MEASUREMENTS OF KISHACOQUILLAS CREEK AT KULPS, MIFFLIN COUNTY, PA.

(Drainage area 190 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec. ft.	
14	Feb. 16	Reckord,	302	3.18	1349	Surface method.
15	Feb. 16	Reckord,	296	3.11	1342	Surface method.
16	Aug. 25	Bowen & Taylor,	189	1.32	153	0.6 method.

DISCHARGE TABLE FOR KISHACOQUILLAS CREEK AT KULPS, MIFFLIN COUNTY, PA., FROM AUGUST 21, 1911.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
0.60	16	.20	154	.80	390	.40	785	3.00	1230
.70	34	.30	188	.90	444	.50	860	.10	1310
.80	54	.40	222	2.00	504	.60	935	.20	1390
.90	76	.50	260	.10	570	.70	1010	.30	1470
1.00	100	.60	298	.20	640	.80	1085	.40	1550
.10	126	.70	342	.30	710	.90	1155	.50	1630

Note.—Due to additional discharge measurements, the discharge curve has been reconstructed and this table supersedes all tables previously published.

NOTE—Due to change in above table, the daily discharge from August 21, 1911, to September 30, 1914, has been revised and republished in this report.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF KISHACOQUILLAS CREEK AT KULPS, MIFFLIN COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1911.

DAY.	AUG.	SEPT.
1,	....	1.35
2,	....	1.17
3,	....	0.81
4,	....	1.15
5,	....	1.15
6,	....	1.45
7,	....	1.24
8,	....	1.17
9,	....	2.25
10,	....	1.93
11,	....	1.71
12,	....	1.60
13,	....	1.45
14,	....	1.33
15,	....	2.19
16,	....	2.19
17,	....	1.83
18,	....	1.69
19,	....	1.60
20,	....	1.57
21,	0.62	1.43
22,	0.72	1.35
23,	0.81	1.27
24,	0.67	1.19
25,	0.93	1.20
26,	0.87	1.19
27,	0.67	1.15
28,	0.61	1.18
29,	1.14	1.35
30,	1.15	1.32
31,	1.57	....

DAILY MEAN GAGE HEIGHTS, IN FEET, OF KISHACOQUILLAS CREEK AT KULPS, MIFFLIN COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1912.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.25	1.61	1.35	1.72	1.02	1.40	2.84	2.30	1.43	0.88	1.15	1.16
2,	3.55	1.45	1.33	1.61	1.00	1.37	3.34	2.24	1.40	0.86	0.99	1.18
3,	2.43	1.38	1.29	1.55	0.88	1.23	3.36	2.14	1.64	1.00	1.01	1.06
4,	2.27	1.35	1.41	1.50	1.10	1.18	2.39	2.03	1.45	1.04	1.07	0.74
5,	1.95	1.32	1.35	1.39	1.24	1.05	2.64	1.94	1.38	1.08	0.85	0.90
6,	1.79	1.39	1.32	1.66	1.12	1.03	2.44	1.92	1.40	0.98	0.78	0.92
7,	2.57	1.64	1.33	1.36	1.02	1.14	2.36	2.13	1.42	1.00	1.08	0.98
8,	2.01	1.47	1.32	1.32	0.80	1.48	2.28	2.22	1.34	1.00	0.66	0.93
9,	1.91	1.40	1.31	1.27	0.86	1.58	2.13	2.30	1.24	1.12	0.81	1.10
10,	1.83	1.37	1.29	1.60	0.92	1.24	2.02	2.16	1.24	0.98	1.25	1.16
11,	1.80	1.36	1.25	1.24	1.11	1.24	1.96	2.08	1.23	0.86	1.44	0.87
12,	1.72	1.42	1.23	1.20	0.88	1.23	1.88	2.25	1.20	0.94	1.22	0.64
13,	1.63	1.51	1.19	1.14	0.92	1.89	1.90	2.86	1.18	0.98	1.20	0.97
14,	1.56	1.37	1.21	1.84	0.80	1.40	1.81	2.48	1.17	0.89	1.18	0.90
15,	1.50	1.40	1.40	1.38	0.83	**5.50	1.79	2.34	1.16	0.98	0.92	0.70
16,	1.46	1.39	1.91	1.31	0.69	††4.20	1.98	†2.74	1.27	0.86	1.07	0.72
17,	1.43	1.36	1.92	1.12	0.76	††4.00	1.92	2.62	1.40	1.18	0.98	0.86
18,	1.81	1.85	1.86	1.10	0.79	††3.60	2.46	2.38	1.22	1.12	0.76	0.82
19,	1.62	1.69	1.79	1.12	1.00	††3.10	2.30	2.26	1.20	0.89	1.00	1.02
20,	1.55	1.69	1.72	1.15	1.22	2.45	2.22	2.16	1.16	1.02	0.95	0.78
21,	1.51	1.68	1.67	1.08	1.10	2.43	2.10	2.05	1.09	‡1.72	0.92	0.90
22,	1.46	1.63	1.69	1.07	1.87	2.24	2.04	1.94	1.04	1.45	1.16	0.80
23,	2.02	1.57	1.87	1.18	1.60	2.08	2.08	1.88	1.02	1.16	0.96	0.76
24,	1.83	1.55	1.67	1.24	1.46	2.21	1.96	1.81	1.03	1.13	1.04	1.88
25,	1.80	1.53	1.71	1.12	2.12	2.35	1.97	1.74	1.02	1.17	0.67	2.15
26,	1.77	1.49	1.67	1.07	1.84	2.40	1.83	1.66	0.86	1.01	0.70	1.78
27,	1.72	1.42	2.15	1.06	2.44	2.69	1.92	1.62	0.99	0.96	0.64	1.64
28,	1.67	1.41	1.87	1.06	1.66	3.41	1.83	1.62	1.08	0.71	1.16	1.52
29,	1.61	1.39	1.85	1.04	1.52	4.14	2.08	1.62	1.08	1.14	1.18	1.40
30,	1.55	1.37	1.79	1.01	....	3.78	2.41	1.56	1.04	1.14	1.08	1.37
31,	1.53	....	1.83	1.00	....	3.26	....	1.50	....	0.92	0.92	....

Noaes.—**Gage carried out by high water; replaced March 20. ††Estimated. †Maximum 3.24 ft. at 5:25 p. m. ‡Maximum 2.40 ft. at 6:05 p. m.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF KISHACOQUILLAS CREEK AT KULPS, MIFFLIN COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1913.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.29	0.88	1.07	1.36	1.74	1.54	2.30	2.02	2.08	1.00	0.72	0.66
2,	1.24	1.04	1.15	1.35	1.56	1.46	2.06	1.92	1.90	1.00	0.69	0.66
3,	1.20	0.98	1.24	2.00	1.58	1.44	2.00	1.84	1.81	1.00	0.74	0.66
4,	1.18	1.08	1.18	2.16	1.57	1.43	1.90	1.74	1.71	0.99	0.73	0.66
5,	1.14	0.91	1.14	1.94	1.46	1.46	1.81	1.68	1.64	0.98	0.66	0.66
6,	1.10	0.76	1.57	1.82	1.46	1.41	1.74	1.64	1.58	1.11	0.86	0.65
7,	1.12	2.08	1.41	1.96	1.38	1.29	1.70	1.58	1.56	1.02	1.07	0.76
8,	1.09	2.49	1.82	2.70	1.44	1.24	1.64	1.50	1.51	0.97	0.95	1.02
9,	1.08	1.97	1.80	2.50	1.39	1.33	1.52	1.46	1.44	0.98	0.61	0.76
10,	1.06	1.78	1.26	2.36	1.38	1.34	1.53	1.42	1.38	1.18	1.01	0.64
11,	1.10	1.68	1.28	2.36	1.37	1.40	1.60	1.38	1.36	1.08	0.90	0.64
12,	1.04	1.48	1.22	2.78	1.80	1.39	1.68	1.38	1.32	1.04	0.91	0.64
13,	0.92	1.45	1.05	2.38	1.25	1.34	1.62	1.38	1.28	1.01	0.93	0.64
14,	0.75	1.54	1.24	2.31	1.24	2.40	1.62	1.37	1.24	1.00	0.70	0.90
15,	0.90	1.30	1.14	2.16	1.22	2.19	1.60	1.36	1.20	0.96	0.70	0.66
16,	0.89	1.40	1.22	2.08	1.24	2.20	1.62	1.34	1.22	0.97	0.90	0.65
17,	1.12	1.34	1.18	2.28	1.28	2.06	1.56	1.27	1.16	0.83	0.84	0.66
18,	1.12	1.28	1.18	2.20	1.24	1.96	1.56	1.26	1.14	0.73	0.70	0.66
19,	0.92	1.26	1.30	2.08	1.21	1.86	1.54	1.25	1.14	1.06	0.92	0.78
20,	0.96	1.24	1.28	2.02	1.20	1.83	1.44	1.24	1.18	0.96	0.66	0.66
21,	0.88	1.20	1.20	2.01	1.22	1.80	1.48	1.20	1.20	1.02	0.82	1.37
22,	0.97	1.20	1.16	1.94	1.40	1.74	1.45	1.27	1.15	1.16	0.83	1.47
23,	0.98	1.18	1.12	1.96	1.42	1.64	1.44	1.28	1.12	1.10	0.78	1.18
24,	1.14	1.17	1.16	2.06	1.31	1.62	1.42	1.56	1.07	1.30	0.99	1.18
25,	0.75	1.18	1.10	1.95	1.23	1.61	1.37	1.32	1.07	1.24	0.69	0.94
26,	1.12	1.17	1.14	1.92	1.18	2.24	1.38	1.28	1.08	1.12	0.84	0.84
27,	1.14	1.09	1.16	1.86	1.26	†5.06	1.68	1.79	1.12	1.02	0.73	0.68
28,	0.92	1.12	1.16	1.82	1.90	3.88	2.32	3.34	1.07	1.00	0.82	0.64
29,	1.10	1.10	1.08	1.76	....	3.16	2.26	3.13	1.04	1.02	0.80	1.10
30,	1.15	1.08	1.22	1.72	....	2.68	2.13	2.67	1.03	0.84	0.81	0.88
31,	1.14	....	1.54	1.70	....	2.52	....	2.36	....	0.75	0.76	....

Note.—†Maximum 5.52 ft. at 4:45 p. m.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF KISHACOQUILLAS CREEK AT KULPS, MIFFLIN COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.56	1.36	1.25	1.38	3.02	1.23	2.77	2.08	1.40	1.04	0.78	0.77
2,	1.31	1.27	1.24	1.36	2.80	1.16	2.83	2.00	1.39	1.03	0.98	0.80
3,	1.17	1.24	1.23	1.41	2.58	1.23	2.56	1.92	1.36	1.07	1.00	0.72
4,	1.08	1.20	1.14	1.91	2.39	1.22	2.38	1.88	1.36	1.02	0.89	0.71
5,	0.90	1.16	1.10	1.68	2.26	1.20	2.26	2.30	1.34	1.08	1.04	1.04
6,	0.82	1.12	1.14	1.60	2.11	1.24	2.14	2.18	1.32	1.00	1.09	0.79
7,	1.06	1.10	2.14	1.58	2.06	1.20	2.09	2.08	1.26	0.88	0.92	0.71
8,	1.02	1.06	2.02	1.56	1.94	1.18	2.25	2.04	1.25	0.98	0.93	0.72
9,	0.88	2.46	1.76	1.52	1.78	1.18	2.34	3.00	1.20	0.95	1.30	0.70
10,	0.76	3.21	1.72	1.56	1.64	1.18	2.18	2.60	1.18	0.72	1.10	0.71
11,	0.88	1.96	1.67	1.48	1.69	1.19	2.11	2.41	1.14	0.76	1.01	0.72
12,	0.73	1.78	1.60	1.46	1.58	1.18	2.06	2.48	1.16	0.88	0.98	0.87
13,	1.12	1.71	1.53	1.49	1.54	1.20	1.96	2.60	1.12	0.92	0.96	0.96
14,	1.15	1.66	1.48	1.48	1.60	1.30	1.87	2.40	1.12	0.74	0.78	0.71
15,	1.13	1.60	1.42	1.37	1.51	1.75	2.07	2.32	1.10	0.75	0.92	0.88
16,	0.73	1.56	1.40	1.42	1.53	2.20	2.68	2.24	1.06	1.06	0.72	0.87
17,	0.64	1.54	1.38	1.44	1.54	2.72	2.38	2.15	0.96	1.24	0.78	0.96
18,	0.89	1.48	1.34	1.36	1.47	3.22	2.24	1.99	1.04	1.10	0.86	0.96
19,	0.68	1.42	1.30	1.34	1.50	2.68	2.22	1.90	1.10	1.04	0.96	0.70
20,	1.54	1.40	1.28	1.34	1.45	2.38	3.45	1.80	1.08	0.86	1.03	0.72
21,	1.72	1.37	1.24	1.38	1.36	2.28	‡3.40	1.78	1.03	1.07	1.04	0.88
22,	1.44	1.32	1.23	1.35	1.28	2.08	3.07	1.74	1.45	0.89	1.03	0.86
23,	1.32	1.20	1.42	1.30	1.35	2.04	2.74	1.68	1.25	0.88	0.93	0.98
24,	1.30	1.32	1.70	1.28	1.34	1.96	2.50	1.66	1.09	0.96	0.72	0.96
25,	1.74	1.27	1.43	1.48	1.30	2.06	2.36	1.62	1.11	1.12	0.78	0.84
26,	2.20	1.25	1.70	1.41	1.26	2.62	2.80	1.56	1.10	0.84	0.70	0.86
27,	1.90	1.22	1.66	1.39	1.28	3.38	2.50	1.53	1.06	0.71	0.83	0.66
28,	1.74	1.22	1.45	1.44	1.23	4.40	2.41	1.50	1.18	1.22	0.72	0.82
29,	1.60	1.37	1.49	1.66	....	3.88	2.32	1.46	1.18	1.15	0.82	0.86
30,	1.53	1.28	1.40	2.05	....	3.50	2.20	1.46	1.05	0.94	0.99	0.94
31,	1.88	....	1.39	†2.72	....	3.08	....	1.44	....	0.70	0.78	....

Notes.—†Maximum 3.10 ft. at 4:20 p. m. ‡Maximum 3.80 ft. at 6:06 p. m.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF KISHACOQUILLAS CREEK AT KULPS, MIFFLIN COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.93	0.80	0.74	0.78	1.64	2.28	1.28	1.28	1.52	1.86	1.10	1.34
2,	0.87	0.64	0.66	0.60	2.96	2.12	1.26	1.24	1.60	2.02	1.11	1.31
3,	0.88	0.68	0.68	0.68	2.46	2.02	1.26	1.24	2.26	2.04	1.44	1.30
4,	0.84	0.82	0.67	0.88	2.20	1.89	1.21	1.30	2.07	1.79	1.34	1.27
5,	0.85	0.81	0.76	0.94	2.04	1.80	1.20	1.40	1.98	1.60	1.24	1.27
6,	0.79	0.81	0.90	0.94	2.01	1.81	1.22	1.34	1.86	1.55	1.34	1.40
7,	0.66	0.61	0.90	2.65	1.92	1.70	1.20	1.30	1.80	1.46	1.24	1.35
8,	0.66	0.98	1.28	2.08	1.84	1.66	1.21	1.28	1.71	1.44	1.26	1.38
9,	0.66	0.67	0.88	1.66	1.75	1.63	1.20	1.24	1.64	1.46	1.47	1.30
10,	0.70	1.04	0.90	1.48	1.59	1.61	1.20	1.24	1.58	1.34	1.44	1.24
11,	0.72	0.88	0.83	1.22	1.54	1.58	1.32	1.23	1.50	1.31	1.30	1.20
12,	0.80	0.78	0.90	1.66	1.58	1.56	1.36	1.21	1.44	1.29	1.36	1.20
13,	0.80	0.82	0.95	2.78	1.75	1.54	1.32	1.32	1.42	1.32	1.42	1.25
14,	0.90	0.61	0.71	2.16	1.72	1.54	1.30	1.28	1.41	1.28	1.28	1.14
15,	0.78	0.87	0.80	1.91	3.42	1.54	1.28	1.22	1.34	1.25	1.28	1.30
16,	0.83	0.74	0.73	1.82	3.24	1.56	1.26	1.20	1.26	1.35	1.23	1.14
17,	0.64	0.82	0.72	1.72	2.88	1.54	1.26	1.26	1.24	1.34	1.20	1.18
18,	1.00	1.08	0.72	2.07	2.59	1.50	1.22	1.23	1.20	1.25	1.18	1.11
19,	0.71	0.86	0.88	3.20	2.38	1.47	1.22	1.20	1.22	1.22	1.14	1.26
20,	0.68	0.78	0.74	2.68	2.25	1.45	1.21	1.16	1.22	1.20	1.10	1.20
21,	0.66	0.62	0.64	2.36	2.20	1.42	1.21	1.28	1.20	1.22	1.12	1.36
22,	0.64	0.89	0.77	2.11	2.17	1.43	1.16	1.74	1.30	1.20	1.70	1.27
23,	0.68	0.65	0.84	1.98	2.16	1.44	1.19	1.77	1.22	1.16	1.44	1.18
24,	0.76	0.88	0.84	1.84	3.55	1.42	1.18	1.89	1.14	1.17	1.38	1.18
25,	0.94	0.81	0.86	1.78	3.98	1.40	1.16	1.94	1.13	1.12	1.84	1.12
26,	0.76	1.10	0.76	1.66	3.36	1.38	1.13	1.84	1.08	1.12	1.28	1.12
27,	0.82	1.08	1.22	1.56	2.73	1.36	1.12	1.78	1.04	1.14	1.24	1.12
28,	0.86	0.87	0.74	1.48	2.48	1.32	1.20	1.71	1.04	1.11	1.25	1.09
29,	0.78	1.06	0.68	1.44	....	1.34	1.54	1.66	1.02	1.12	1.53	1.10
30,	0.84	0.72	0.84	1.30	....	1.32	1.34	1.62	1.22	1.13	1.42	1.08
31,	0.82	....	0.61	1.32	....	1.30	....	1.62	....	1.10	1.40	....

DAILY DISCHARGE, IN SECOND-FEET, OF KISHACOQUILLAS CREEK AT KULPS, MIFFLIN COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1911.

DAY.	AUG.	SEPT.
1,	....	205
2,	....	146
3,	....	56
4,	....	140
5,	....	140
6,	....	241
7,	....	168
8,	....	146
9,	....	675
10,	....	462
11,	....	347
12,	....	298
13,	....	241
14,	....	198
15,	....	633
16,	....	633
17,	....	406
18,	....	338
19,	....	298
20,	....	267
21,	20	233
22,	38	205
23,	56	178
24,	29	151
25,	83	154
26,	69	151
27,	29	140
28,	18	184
29,	137	205
30,	140	196
31,	287	....

DAILY DISCHARGE, IN SECOND-FEET, OF KISHACOQUILLAS CREEK AT KULPS, MIFFLIN COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1912.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	171	302	205	352	105	222	1120	710	233	72	140	143
2,	1660	241	198	302	100	212	1500	668	222	67	98	148
3,	808	215	185	279	72	164	1520	598	316	100	103	116
4,	689	205	226	260	126	148	1150	524	241	110	118	42
5,	474	195	205	219	168	113	965	468	215	108	65	76
6,	385	219	195	324	132	108	815	456	222	115	50	81
7,	912	316	198	208	105	137	755	591	230	100	121	95
8,	511	249	195	195	54	252	696	654	202	100	27	83
9,	450	222	191	178	67	290	591	710	168	132	56	126
10,	406	212	185	298	81	168	517	612	168	95	171	143
11,	390	208	171	168	129	168	480	557	164	67	237	69
12,	352	230	164	154	72	161	433	675	154	86	161	23
13,	311	264	151	137	81	439	444	1130	148	95	154	93
14,	283	212	157	202	54	222	395	845	146	74	148	76
15,	260	222	222	215	61	3200	385	740	143	95	81	84
16,	245	219	450	191	32	2180	492	†1040	178	67	118	88
17,	233	208	456	132	46	2020	456	950	222	148	95	67
18,	395	417	422	126	52	1700	830	770	161	132	46	58
19,	307	338	385	132	100	1310	710	682	154	74	100	105
20,	279	338	352	140	161	822	654	612	143	105	88	50
21,	264	383	329	121	126	808	570	537	128	‡352	81	76
22,	245	311	338	118	428	668	530	468	110	241	143	54
23,	517	287	428	148	298	557	557	433	105	143	90	46
24,	406	279	329	168	245	647	480	395	108	134	110	433
25,	390	271	347	132	584	748	486	361	105	146	29	605
26,	376	256	329	118	412	785	406	324	67	108	34	380
27,	352	230	605	116	815	1000	456	307	98	90	23	316
28,	329	226	428	116	224	1560	406	307	121	36	143	268
29,	302	219	417	110	268	2130	524	307	121	187	148	222
30,	279	212	385	103	....	1850	792	283	110	137	108	212
31,	271	....	406	100	....	1440	....	260	....	81	81	....

Notes.—†Maximum=1420 sec.-ft. ‡Maximum=785 sec.-ft. Discharges above 1630 sec.-ft. are estimated.

DAILY DISCHARGE, IN SECOND-FEET, OF KISHACOQUILLAS CREEK AT KULPS, MIFFLIN COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30. 1913.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	185	72	118	208	361	275	710	517	557	100	38	27
2,	168	110	140	205	283	245	557	456	444	100	32	27
3,	154	95	168	504	290	237	504	412	395	100	42	27
4,	148	121	148	612	287	233	444	361	347	98	40	27
5,	137	78	137	468	245	245	396	333	316	95	27	27
6,	126	46	287	401	245	226	361	316	290	129	67	25
7,	132	557	226	480	215	185	342	290	283	105	118	46
8,	123	852	195	1010	287	168	316	260	264	98	88	105
9,	108	486	188	860	219	198	268	245	287	95	18	46
10,	116	380	174	755	215	202	271	230	215	148	108	23
11,	126	333	181	755	212	222	298	215	208	121	76	23
12,	110	252	161	1070	188	219	333	215	195	110	78	23
13,	81	241	113	770	171	202	307	215	181	108	83	23
14,	44	275	168	718	168	785	307	212	168	100	34	76
15,	76	188	137	612	161	638	298	208	154	90	34	27
16,	74	222	161	557	168	640	307	202	161	98	76	25
17,	133	202	148	696	181	544	233	178	143	61	63	27
18,	132	181	148	640	168	480	283	174	137	40	34	27
19,	81	174	188	557	157	422	275	171	137	116	81	50
20,	90	168	181	517	154	406	237	168	148	90	27	27
21,	72	154	154	511	161	390	252	154	154	105	58	212
22,	93	154	143	468	222	361	241	178	140	143	61	249
23,	95	148	132	480	230	316	237	181	132	126	50	148
24,	137	146	143	544	191	307	230	253	118	188	98	148
25,	44	148	126	474	164	302	212	195	118	168	32	86
26,	132	146	137	456	148	668	215	181	121	132	63	63
27,	137	123	143	422	174	†2850	333	385	132	105	40	30
28,	81	132	143	401	444	1920	725	1500	118	100	58	23
29,	126	126	121	371	....	1360	682	1330	110	105	54	126
30,	140	121	161	352	....	995	591	968	108	63	56	72
31,	137	....	275	342	....	875	....	755	....	44	46	....

Notes.—†Maximum=3210 sec.-ft. Discharges above 1630 sec.-ft. are estimated.

DAILY DISCHARGE, IN SECOND-FEET, OF KISHACOQUILLAS CREEK AT KULPS, MIFFLIN COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	283	208	171	215	1250	164	1060	557	222	110	50	48
2,	191	178	168	208	1080	143	1110	504	219	121	95	54
3,	146	168	164	226	920	164	905	456	208	118	100	38
4,	121	154	137	450	778	161	770	433	208	105	74	36
5,	76	143	126	333	682	154	632	710	202	121	110	110
6,	58	132	137	298	577	168	598	626	195	100	123	52
7,	116	126	598	290	544	154	563	524	174	72	81	36
8,	105	116	517	283	468	148	675	530	171	95	83	38
9,	72	830	371	268	380	148	740	1230	154	88	188	34
10,	46	1400	352	283	316	148	626	935	148	38	126	36
11,	72	480	329	252	338	151	577	792	137	46	108	38
12,	40	380	298	245	290	148	537	845	143	72	95	69
13,	132	347	271	256	275	154	480	935	132	81	90	90
14,	140	324	252	252	298	188	428	785	132	42	50	36
15,	134	298	230	212	264	366	550	725	126	44	81	72
16,	40	283	222	230	271	640	995	668	116	116	38	69
17,	23	275	215	237	275	1020	770	605	90	168	50	90
18,	74	252	202	208	249	1410	668	498	110	126	67	90
19,	30	230	188	202	260	995	654	444	126	110	90	34
20,	275	222	181	202	241	770	1590	390	121	67	108	38
21,	352	212	168	215	208	696	‡1550	380	105	118	110	72
22,	237	195	164	205	181	557	1290	361	241	74	105	67
23,	195	154	230	188	205	530	1040	333	171	72	83	88
24,	188	195	342	181	202	480	860	324	123	90	38	90
25,	361	178	233	252	188	544	755	307	129	132	50	63
26,	640	171	342	226	174	950	1080	283	126	63	34	67
27,	444	161	324	219	181	1530	860	271	116	36	61	27
28,	361	161	241	237	164	2330	792	260	148	161	38	58
29,	298	212	256	324	....	1920	725	245	148	140	58	67
30,	271	181	222	537	....	1630	640	245	118	86	98	86
31,	215	....	219	†1020	....	1290	....	237	....	34	50	....

Notes.—†Maximum=1310 sec.-ft. ‡Maximum=1860 sec.-ft. Discharges above 1630 sec.-ft. are estimated.

DAILY DISCHARGE, IN SECOND-FEET, OF KISHACOQUILLAS CREEK AT KULPS, MIFFLIN COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	83	54	42	50	316	696	181	181	268	422	126	202
2,	69	23	27	16	1200	584	174	168	298	517	129	191
3,	72	30	30	30	830	517	174	168	682	530	237	188
4,	63	58	29	72	640	439	157	183	550	385	202	178
5,	65	56	46	86	530	390	154	222	492	298	168	178
6,	52	56	76	86	511	395	161	202	422	279	208	222
7,	27	18	76	972	456	342	154	188	390	245	168	205
8,	27	95	181	557	412	324	157	181	347	287	174	215
9,	27	29	72	324	366	311	154	168	316	245	249	188
10,	34	110	76	233	294	302	154	168	290	202	237	168
11,	38	72	61	161	275	290	195	164	260	191	188	154
12,	54	50	76	324	290	283	208	157	237	185	208	154
13,	54	58	88	1070	366	275	195	195	230	195	230	171
14,	76	18	36	612	352	275	188	181	226	181	181	137
15,	50	69	54	450	1570	275	181	161	202	171	181	188
16,	61	42	40	401	1420	283	174	154	174	206	164	137
17,	23	58	38	352	1140	275	174	174	168	202	154	148
18,	100	121	38	550	928	260	161	164	154	171	148	129
19,	36	67	72	1390	770	249	161	154	161	161	137	174
20,	30	50	42	995	675	241	157	143	161	154	126	154
21,	27	20	23	755	640	230	157	181	154	161	132	208
22,	23	74	48	677	619	233	143	361	188	154	342	178
23,	30	25	63	492	612	237	151	376	161	148	237	148
24,	46	72	63	412	1670	230	148	439	137	146	215	148
25,	86	56	67	380	2000	222	143	468	134	132	202	132
26,	46	126	46	324	1520	215	134	412	121	132	181	132
27,	58	121	161	283	1030	208	132	380	110	137	168	132
28,	67	69	42	252	845	195	154	347	110	129	171	123
29,	50	116	80	237	....	202	275	324	106	132	271	126
30,	63	38	63	188	....	195	202	307	161	132	230	121
31,	58	....	18	195	....	188	....	307	....	126	222	....

Note.—Discharge above 1630 sec.-ft. is estimated.

ESTIMATED MONTHLY DISCHARGE OF KISHACOQUILLAS CREEK AT KULPS, MIFFLIN COUNTY, PA.

(Drainage area 190 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1911.					
September,	675	56	260	1.37	1.53
1911.					
October,	††1660	171	427	2.25	2.59
November,	417	195	255	1.34	1.50
December,	605	151	299	1.57	1.82
1912.					
January,	352	100	179	0.94	1.09
February,	815	32	179	0.94	1.02
March,	††3200	108	846	4.45	5.13
April,	1520	385	671	3.53	3.94
May,	1420	260	580	3.05	3.52
June,	316	67	163	0.86	0.96
July,	785	36	114	0.60	0.69
August,	237	23	102	0.54	0.62
September,	605	23	143	0.75	0.84
The year,	††3200	23	330	1.74	23.72
1912.					
October,	185	44	114	0.60	0.69
November,	852	46	214	1.13	1.26
December,	287	113	163	0.86	0.99
1913.					
January,	1070	205	555	2.92	3.37
February,	444	148	216	1.14	1.18
March,	††3210	168	552	2.90	3.35
April,	725	212	360	1.90	2.11
May,	1500	154	371	1.95	2.25
June,	557	108	208	1.10	1.22
July,	188	40	105	0.55	0.64
August,	118	18	57	0.30	0.35
September,	249	23	62	0.33	0.36
The year,	††3210	18	248	1.31	17.77
1913.					
October,	640	23	185	0.97	1.12
November,	1400	116	279	1.47	1.64
December,	598	126	254	1.34	1.54
1914.					
January,	1810	183	282	1.48	1.71
February,	1250	164	402	2.12	2.20
March,	††2330	143	640	3.37	3.88
April,	††1860	428	819	4.31	4.81
May,	1230	237	530	2.79	3.22
June,	241	90	152	0.80	0.89
July,	168	34	92	0.48	0.56
August,	188	34	82	0.43	0.50
September,	110	27	60	0.32	0.35
The year,	††2330	23	315	1.66	22.42
1914.					
October,	100	23	51	0.27	0.31
November,	126	18	62	0.33	0.37
December,	181	18	59	0.31	0.36
1915.					
January,	1390	16	414	2.18	2.51
February,	††2000	275	796	4.19	4.36
March,	696	188	302	1.59	1.83
April,	275	132	168	0.88	0.98
May,	468	143	238	1.25	1.44
June,	682	105	247	1.30	1.45
July,	530	126	216	1.14	1.31
August,	342	126	193	1.02	1.18
September,	222	121	164	0.86	0.96
The year,	††2000	16	242	1.28	17.06

Note.—††Estimated.

SUSQUEHANNA BASIN—STATION NO. 33.

TUSCARORA CREEK NEAR PORT ROYAL, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge, about 2 miles above Port Royal, Juniata County.

RECORDS AVAILABLE—Discharge complete from August 21, 1911, to September 30, 1915.

DRAINAGE AREA—205 square miles.

GAGE—A chain gage, whose elevation of zero is arbitrary, is located on the upstream side of the bridge and is read twice daily by G. W. Groninger.

CHANNEL—Both banks are low but not subject to overflow except during extreme stages, and the bed is composed of gravel and rocks.

DISCHARGE MEASUREMENT OF TUSCARORA CREEK NEAR PORT ROYAL, JUNIATA COUNTY, PA.

(Drainage area 205 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915		Sq. ft.	Feet.	Sec. ft.	
16	Aug. 25	Bowen and Taylor, ...	94	2.98	120	Wading 100 ft. upstream

DISCHARGE TABLE FOR TUSCARORA CREEK NEAR PORT ROYAL, JUNIATA COUNTY, PA. FROM JANUARY 1, 1913.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
2.00	3	.70	315	.40	1210	.10	2575	.80	4340
.10	10	.80	350	.50	1275	.20	2665	.90	4460
.20	20	.90	385	.60	1345	.30	2755	9.00	4580
.30	32	4.00	425	.70	1415	.40	2850	.10	4700
.40	44	.10	465	.80	1490	.50	2950	.20	4820
.50	57	.20	510	.90	1565	.60	3050	.30	4945
.60	70	.30	560	6.00	1640	.70	3150	.40	5080
.70	85	.40	615	.10	1715	.80	3250	.50	5215
.80	100	.50	670	.20	1790	.90	3350	.60	5350
.90	120	.60	725	.30	1870	8.00	3455	.70	5485
3.00	140	.70	780	.40	1950	.10	3560	.80	5625
.10	160	.80	835	.50	2035	.20	3665	.90	5765
.20	180	.90	890	.60	2125	.30	3775	10.00	5905
.30	205	5.00	950	.70	2215	.40	3885		
.40	230	.10	1015	.80	2305	.50	3995		
.50	255	.20	1080	.90	2395	.60	4110		
.60	285	.30	1145	7.00	2485	.70	4225		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF TUSCARORA CREEK NEAR PORT ROYAL, JUNIATA COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1	1.99	2.08	2.08	....	4.18	4.09	2.95	3.36	3.22	2.99	2.47	3.36
2	2.09	2.14	2.06	....	8.71	3.91	2.87	3.24	3.38	2.92	2.49	3.12
3	2.21	2.09	2.19	....	6.32	3.73	2.87	3.12	6.96	3.59	3.36	2.91
4	1.98	2.17	2.37	....	4.56	3.54	2.85	3.10	5.77	2.95	3.23	2.82
5	1.98	2.05	2.18	....	4.36	3.46	2.84	3.26	4.71	2.81	3.09	2.80
6	2.10	2.15	2.07	....	4.42	3.47	2.81	3.02	4.14	2.93	3.08	2.84
7	2.14	2.12	2.55	7.08	4.30	3.47	2.78	2.99	3.85	2.69	2.90	3.01
8	2.19	2.02	3.97	6.18	4.00	3.36	2.73	2.91	3.62	2.57	2.66	2.87
9	2.09	2.08	3.27	4.56	3.80	3.32	2.70	2.85	3.44	2.66	2.87	2.68
10	2.01	2.12	3.05	3.75	3.33	3.37	2.73	2.84	3.28	2.58	3.06	2.56
11	2.09	2.16	2.99	3.56	3.43	3.58	2.82	2.74	3.19	2.52	2.71	2.69
12	2.01	2.11	2.92	4.28	3.66	3.55	3.14	2.78	3.14	2.61	2.62	2.86
13	2.19	2.11	2.77	8.46	4.35	3.42	2.97	2.94	3.08	2.77	2.82	2.82
14	2.01	2.07	3.22	6.10	4.15	3.55	2.85	2.80	3.45	2.55	2.65	2.6
15	2.19	2.27	*	4.82	6.33	3.65	2.80	2.70	3.04	2.51	2.53	2.50
16	2.15	2.93	....	4.46	6.83	3.59	2.82	2.66	2.92	2.47	2.60	2.54
17	2.36	2.65	....	4.23	5.43	3.53	2.84	2.88	2.88	2.52	2.48	2.56
18	2.36	2.37	....	5.10	4.88	3.38	2.84	2.80	2.81	2.47	2.44	2.88
19	2.37	2.30	....	7.13	4.50	3.31	2.83	2.77	2.81	2.43	2.43	3.96
20	2.11	2.17	....	5.78	4.23	3.37	2.85	2.67	3.30	2.38	2.37	3.48
21	2.25	2.15	....	4.73	4.12	3.27	2.81	2.75	2.87	2.53	2.41	3.39
22	2.11	2.07	....	4.16	4.10	3.21	2.79	6.22	2.82	2.49	5.02	3.33
23	2.07	2.16	....	3.96	4.16	3.25	2.79	5.14	2.78	2.49	3.70	2.90
24	2.03	2.15	....	3.92	6.48	3.18	2.85	4.28	2.64	2.39	3.16	2.80
25	2.07	2.05	....	3.46	7.48	3.13	2.85	3.95	2.61	2.31	2.99	2.78
26	2.12	2.21	....	3.38	5.54	3.17	2.77	3.69	2.60	2.39	2.77	2.66
27	2.11	2.17	....	3.46	4.76	3.07	2.75	3.49	2.57	2.37	2.72	2.61
28	2.13	2.00	....	3.34	4.32	3.01	2.99	3.34	2.49	2.41	2.66	2.62
29	2.09	2.06	....	3.14	....	3.10	†4.02	3.19	2.54	2.46	4.46	2.53
30	2.02	2.09	....	3.35	....	3.03	3.81	3.34	2.54	2.39	3.80	2.48
31	2.04	....	....	3.57	....	2.93	....	3.65	....	2.39	3.70	....

Notes.—*Creek frozen December 15, 1914, to January 6, 1915, inclusive. †Maximum 4.48 ft. at 5:45 p. m.

DAILY DISCHARGE, IN SECOND-FEET, OF TUSCARORA CREEK NEAR PORT ROYAL, JUNIATA COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	3	9	9	78	501	461	130	220	185	138	53	220
2,	9	14	7	78	4240	389	114	190	225	124	56	164
3,	21	9	19	78	1890	326	114	164	2450	282	220	122
4,	3	17	40	78	868	267	110	160	1470	130	188	104
5,	3	6	18	78	593	245	108	195	786	102	158	100
6,	10	15	8	78	626	248	102	144	483	126	156	108
7,	14	12	64	2560	560	248	97	138	368	84	120	148
8,	19	4	413	1780	425	220	90	122	291	66	79	114
9,	9	9	198	703	350	210	85	110	240	79	114	82
10,	4	12	150	332	212	222	90	108	200	67	152	65
11,	9	16	138	273	238	279	104	91	178	60	86	82
12,	4	11	124	550	303	270	168	97	168	72	73	112
13,	19	11	96	3950	576	235	134	128	156	96	104	104
14,	4	8	188	1720	488	270	110	100	242	64	78	73
15,	19	28	*49	846	1890	300	100	85	148	58	61	57
16,	15	126	49	648	2330	282	104	79	124	53	70	62
17,	39	78	49	525	1230	264	108	116	116	60	54	65
18,	39	40	49	1020	879	225	108	100	102	53	49	116
19,	40	32	49	2600	670	208	106	96	102	48	48	409
20,	11	17	49	1480	525	222	110	80	205	42	40	250
21,	26	15	49	796	474	198	102	92	114	61	45	228
22,	11	8	49	492	465	182	98	1810	104	56	963	212
23,	8	16	49	409	492	192	98	1040	97	56	315	120
24,	5	15	49	393	2020	176	110	550	76	43	172	100
25,	8	6	49	245	2930	166	110	405	72	33	138	97
26,	12	21	49	225	1300	174	96	312	70	43	96	79
27,	11	17	49	245	818	154	92	252	66	40	88	72
28,	13	3	49	215	571	142	138	215	56	45	79	73
29,	9	7	49	168	....	160	†433	178	62	52	648	61
30,	4	9	49	218	....	146	354	215	62	43	350	54
31,	6	....	49	276	....	126	....	300	....	43	315	....

Notes—*Creek frozen December 15, 1914, to January 6, 1915, inclusive, and discharge estimated from Raystown Branch Juniata River at Saxton. †Maximum=659 sec.-ft.

ESTIMATED MONTHLY DISCHARGE OF TUSCARORA CREEK NEAR PORT ROYAL, JUNIATA COUNTY, PA.

(Drainage area 205 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	40	3	13	0.06	0.07
November,	126	3	20	0.10	0.11
December,	413	7	74	0.36	0.42
1915.					
January,	3950	....	746	3.64	4.20
February,	4240	212	1020	4.98	5.19
March,	461	126	232	1.13	1.30
April,	659	85	127	0.62	0.69
May,	1810	79	255	1.24	1.43
June,	2450	56	301	1.47	1.64
July,	282	33	75	0.37	0.43
August,	963	40	167	0.81	0.93
September,	409	54	122	0.60	0.67
The year,	4240	3	263	1.28	17.08

Note:—Creek frozen December 15, 1914, to January 6, 1915, inclusive, and discharge estimated from Raystown Branch Juniata River at Saxton.

SUSQUEHANNA BASIN—STATION NO. 34

JUNIATA RIVER AT NEWPORT, PA.

DESCRIPTION OF STATION.

LOCATION—At four span, steel, through-truss, highway bridge 800 feet east of Public Square at Newport, Perry County.

RECORDS AVAILABLE—Discharge complete from March 21, 1899, to July 14, 1906, and from January 7, 1907, to September 30 1915.

DRAINAGE AREA—3,380 square miles.

GAGE—A standard chain gage, whose elevation of zero is 363.32 feet above mean sea level, is located on the downstream side of the bridge and is read twice daily by G. A. Sweger.

CHANNEL—Both banks are high and not subject to overflow, an the bed is composed of hard material.

DISCHARGE MEASUREMENTS OF JUNIATA RIVER AT NEWPORT, PERRY COUNTY, PA.

(Drainage area 3,380 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915		Sq. ft.	Feet.	Sec. ft.	
42	June 4	Gough, ...	8163	15.22	46497	Surface method.
43	June 9	Boehringer & Gough, ...	2090	5.37	7428	0.6 method.
44	Aug. 26	Bowen & Taylor, ...	1179	3.75	2262	0.6 method.

DISCHARGE TABLE FOR JUNIATA RIVER AT NEWPORT, PERRY COUNTY, PA., FROM JANUARY 1, 1914.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
2.60	420	.60	10800	.60	26780	.60	46540	.60	70120
.70	490	.70	11160	.70	27220	.70	47100	.70	70740
.80	565	.80	11520	.80	27660	.80	47660	.80	71360
.90	655	.90	11880	.90	28100	.90	48220	.90	71980
3.00	760	7.00	12240	11.00	28540	15.00	48780	19.00	72600
.10	875	.10	12600	.10	28980	.10	49340	.10	73220
.20	1010	.20	12960	.20	29420	.20	49900	.20	73840
.30	1155	.30	13330	.30	29880	.30	50460	.30	74460
.40	1320	.40	13700	.40	30340	.40	51040	.40	75080
.50	1500	.50	14070	.50	30800	.50	51620	.50	75700
.60	1695	.60	14440	.60	31260	.60	52200	.60	76320
.70	1910	.70	14820	.70	31720	.70	52780	.70	76940
.80	2140	.80	15200	.80	32180	.80	53360	.80	77560
.90	2380	.90	15580	.90	32640	.90	53940	.90	78180
4.00	2630	8.00	15960	12.00	33100	16.00	54520	20.00	78800
.10	2900	.10	16350	.10	33580	.10	55100	.10	79420
.20	3170	.20	16740	.20	34060	.20	55680	.20	80060
.30	3440	.30	17130	.30	34540	.30	56260	.30	80700
.40	3710	.40	17520	.40	35020	.40	56840	.40	81340
.50	3990	.50	17920	.50	35500	.50	57440	.50	81980
.60	4270	.60	18320	.60	36000	.60	58040	.60	82620
.70	4550	.70	18720	.70	36500	.70	58640	.70	83260
.80	4830	.80	19120	.80	37000	.80	59240	.80	83900
.90	5130	.90	19520	.90	37500	.90	59840	.90	84540
5.00	5440	9.00	19940	13.00	38020	17.00	60440	21.00	85180
.10	5750	.10	20360	.10	38540	.10	61040	.10	85820
.20	6060	.20	20780	.20	39060	.20	61640	.20	86460
.30	6380	.30	21200	.30	39580	.30	62240	.30	87100
.40	6700	.40	21620	.40	40100	.40	62840	.40	87740
.50	7020	.50	22040	.50	40620	.50	63440	.50	88380
.60	7350	.60	22460	.60	41140	.60	64040	.60	89020
.70	7680	.70	22880	.70	41660	.70	64640	.70	89660
.80	8010	.80	23300	.80	42200	.80	65240	.80	90300
.90	8340	.90	23720	.90	42740	.90	65840	.90	90940
6.00	8680	10.00	24140	14.00	43280	18.00	66440	22.00	91580
.10	9020	.10	24580	.10	43820	.10	67040	.10	92220
.20	9370	.20	25020	.20	44360	.20	67640	.20	92860
.30	9720	.30	25460	.30	44900	.30	68260		
.40	10080	.40	25900	.40	45440	.40	68880		
.50	10440	.50	26340	.50	45980	.50	69500		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF JUNIATA RIVER AT NEWPORT, PERRY COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	2.89	2.83	2.83	3.54	3.96	6.36	3.89	4.17	5.75	3.61	3.18	4.03
2,	2.85	2.89	2.84	3.51	8.09	5.82	3.88	4.12	5.68	4.70	3.30	3.88
3,	2.85	2.83	3.16	3.54	12.86	5.40	3.81	3.85	8.77	4.75	3.71	3.66
4,	2.83	2.84	3.10	3.67	9.66	5.10	3.76	3.82	§15.30	4.64	5.62	3.54
5,	2.82	2.83	2.92	3.64	7.70	4.86	3.72	3.93	11.42	4.45	5.06	3.48
6,	2.81	2.81	2.92	3.51	6.56	4.74	3.69	3.84	8.27	4.19	5.09	3.64
7,	2.89	2.83	2.96	6.61	6.48	4.65	3.71	3.81	6.70	4.28	4.49	3.63
8,	2.84	2.80	3.79	9.24	5.74	4.56	3.62	3.75	6.11	4.12	4.06	3.73
9,	2.87	2.85	3.55	8.04	5.34	4.50	3.69	3.69	5.35	3.87	4.14	3.59
10,	2.86	2.85	3.71	6.84	4.93	4.46	3.72	3.59	5.18	3.78	4.32	3.63
11,	2.86	2.90	3.44	5.11	4.70	4.56	3.99	3.56	4.61	3.72	4.08	3.53
12,	2.94	2.96	3.36	5.89	4.59	4.60	3.93	3.57	4.46	3.64	3.87	3.44
13,	2.85	2.80	3.26	8.59	4.83	4.57	3.91	3.49	4.28	3.68	3.74	3.44
14,	2.96	2.77	3.22	7.45	6.33	4.52	3.80	3.58	4.32	3.73	3.64	3.26
15,	2.93	2.88	2.95	6.24	8.27	4.58	3.69	3.52	4.28	3.57	3.61	3.37
16,	3.14	3.27	3.15	5.61	13.92	4.64	3.61	3.48	4.26	3.59	3.56	3.29
17,	3.21	3.19	3.68	5.11	12.31	4.74	3.65	3.52	4.31	3.49	3.43	3.18
18,	3.26	3.31	3.62	5.29	9.06	4.62	3.65	3.48	3.88	3.46	3.42	3.18
19,	3.11	3.21	3.45	7.71	7.62	4.53	3.61	3.57	3.81	3.35	3.30	3.49
20,	3.26	3.33	3.45	10.09	6.74	4.46	3.57	3.53	4.00	3.47	3.25	3.57
21,	3.41	3.07	3.50	8.39	6.28	4.38	3.62	3.55	3.82	3.31	3.30	3.68
22,	2.83	2.86	3.62	6.67	6.30	4.27	3.56	4.42	3.91	3.33	3.96	3.78
23,	2.83	2.96	3.50	5.79	6.14	4.30	3.56	‡7.99	3.84	3.32	4.90	3.75
24,	2.87	2.83	3.35	5.20	7.89	4.26	3.55	7.23	3.62	3.37	4.28	3.56
25,	2.82	2.99	3.30	5.19	†13.78	4.18	3.55	6.51	3.42	3.23	4.04	3.46
26,	2.85	2.83	3.45	4.75	12.77	4.13	3.55	6.05	3.36	3.25	3.75	3.34
27,	2.83	2.97	3.48	4.53	8.96	4.43	3.53	5.47	3.36	3.23	3.53	3.36
28,	2.93	2.85	3.40	4.39	7.29	4.28	3.55	5.32	3.27	3.24	3.45	3.32
29,	2.80	2.95	3.55	4.21	....	4.63	4.13	4.75	3.24	3.20	4.20	3.09
30,	2.82	2.92	3.40	4.04	....	4.02	4.65	4.62	3.34	3.18	4.12	3.09
31,	2.83	....	3.55	3.71	....	3.96	....	5.23	....	3.29	4.23	....

Notes—†Maximum 14.50 ft. at 11 P. M. from hydrograph. ‡Maximum 8.80 ft at 5 P. M. §Maximum 16.16 ft. at 8 A. M.

DAILY DISCHARGE, IN SECOND-FEET, OF JUNIATA RIVER AT NEWPORT, PERRY COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	646	592	592	1580	2530	9940	2360	3090	7840	1720	983	2710
2,	610	646	601	1520	16300	8060	2330	2950	7610	4550	1160	2330
3,	610	592	956	1580	37300	6700	2160	2260	19000	4690	1930	1820
4,	592	601	875	1850	22700	5750	2050	2190	§50500	4380	7420	1580
5,	583	592	676	1780	14800	5010	1960	2460	30400	3850	5630	1460
6,	574	574	676	1520	10700	4660	1890	2240	17000	3140	5720	1780
7,	646	592	708	10800	10400	4410	1930	2160	11200	3390	3060	1760
8,	601	565	2120	20900	7810	4160	1740	2020	9060	2950	2790	1980
9,	628	610	1600	16100	6510	3990	1890	1890	6540	2310	3010	1690
10,	619	610	1930	9860	5220	3880	1960	1680	6000	2090	3490	1760
11,	619	655	1390	5780	4550	4160	2600	1620	4300	1960	2850	1560
12,	697	718	1250	8310	4240	4270	2460	1640	3880	1780	2310	1390
13,	610	565	1100	18300	4920	4190	2400	1480	3390	1870	2000	1390
14,	718	542	1040	13900	9830	4050	2140	1660	3490	1980	1780	1100
15,	686	637	708	9510	17000	4210	1890	1540	3390	1640	1720	1270
16,	929	1110	942	7380	42800	4380	1720	1460	3330	1680	1620	1140
17,	1020	996	1870	5780	34600	4660	1800	1540	3470	1480	1370	983
18,	1100	1170	1740	6850	20200	4330	1800	1460	2330	1430	1360	983
19,	888	1020	1410	14900	14500	4070	1720	1640	2160	1240	1160	1480
20,	1100	1200	1410	24500	11300	3880	1640	1560	2630	1450	1080	1640
21,	1340	840	1500	17500	9650	3660	1740	1600	2190	1170	1160	1870
22,	592	619	1740	11100	9720	3360	1620	3770	2400	1200	2530	2090
23,	592	718	1500	7980	9160	3440	1620	‡15900	2240	1190	5130	2020
24,	628	592	1240	6060	13700	3330	1600	13100	1740	1270	3390	1620
25,	583	750	1160	6030	†42100	3120	1600	10500	1360	1050	2740	1430
26,	610	592	1410	4690	36800	2980	1600	8850	1250	1080	2020	1220
27,	592	728	1460	4070	19800	3790	1560	6920	1250	1050	1560	1250
28,	686	610	1320	3680	13300	3390	1600	6440	1110	1070	1410	1190
29,	565	708	1600	3200	....	4350	2980	4690	1070	1010	3170	864
30,	583	676	1320	2740	....	2680	4410	4330	1220	983	2950	864
31,	592	....	1600	1930	....	2530	....	6160	....	1140	3250	....

Notes—†Maximum=46000 sec.-ft. ‡Maximum=19100 sec.-ft. §Maximum=55400 sec.-ft.

ESTIMATED MONTHLY DISCHARGE OF JUNIATA RIVER AT NEWPORT, PERRY COUNTY, PA.

(Drainage area 3,380 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	1340	565	704	0.21	0.24
November,	1200	542	714	0.21	0.23
December,	2120	592	1270	0.38	0.44
1915.					
January,	24500	1520	8100	2.40	2.77
February,	45200	2530	16200	4.79	4.99
March,	9940	2530	4370	1.29	1.49
April,	4410	1560	2030	0.60	0.67
May,	19100	1460	3900	1.15	1.33
June,	55400	1070	7110	2.10	2.34
July,	4690	983	1990	0.59	0.68
August,	7420	983	2670	0.79	0.91
September,	2710	864	1540	0.46	0.51
The year,	55400	542	4220	1.25	16.60

SUSQUEHANNA BASIN—STATION NO. 35.

CONODOGUINET CREEK AT BRYSONS BRIDGE, PA.

DESCRIPTION OF STATION.

LOCATION—At two span, wooden covered, highway bridge, 500 feet below Spangler's Mill, near Hogestown, Cumberland County.

RECORDS AVAILABLE—Discharge complete from September 26, 1911, to September 30, 1915.

DRAINAGE AREA—460 square miles.

GAGE—A sectional chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge and is read twice daily by Robert D. Hoy.

CHANNEL—The right bank is fairly high, while the left bank is low, but all the water passes under the bridge except at extreme stages. The bed is composed of rocks, gravel and sand.

REMARKS—Silver Spring Creek enters about 500 feet above the bridge.

DISCHARGE MEASUREMENT OF CONODOGUINET CREEK AT BRYSONS BRIDGE, CUMBERLAND COUNTY, PA.

(Drainage area 460 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915		Sq. ft.	Feet.	Sec. ft.	
24	Aug. 23	Bowen & Taylor, ...	1551	8.39	4835	Surface method.

DISCHARGE TABLE FOR CONODOGUINET CREEK AT BRYSONS BRIDGE, CUMBERLAND COUNTY, PA., FROM JANUARY 1, 1912.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
2.50	101	.10	770	.70	1850	.30	3390	.90	5710
.60	127	.20	830	.80	1930	.40	3510	9.00	5880
.70	155	.30	890	.90	2010	.50	3640	.10	6060
.80	185	.40	950	6.00	2090	.60	3770	.20	6240
.90	217	.50	1010	.10	2170	.70	3900	.30	6420
3.00	251	.60	1070	.20	2260	.80	4030	.40	6610
.10	287	.70	1130	.30	2350	.90	4160	.50	6800
.20	325	.80	1200	.40	2450	8.00	4300	.60	7000
.30	365	.90	1270	.50	2550	.10	4450	.70	7200
.40	405	5.00	1340	.60	2650	.20	4600	.80	7410
.50	450	.10	1410	.70	2750	.30	4750	.90	7630
.60	495	.20	1480	.80	2850	.40	4900	10.00	7850
.70	545	.30	1550	.90	2950	.50	5050		
.80	600	.40	1620	7.00	3050	.60	5210		
.90	655	.50	1690	.10	3160	.70	5370		
4.00	710	.60	1770	.20	3270	.80	5540		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF CONODOGUINET CREEK AT BRYSONS BRIDGE, CUMBERLAND COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	2.94	2.69	2.58	3.48	4.28	4.57	3.14	3.07	3.80	3.15	3.58	5.18
2,	2.99	2.69	2.61	3.43	9.03	4.32	3.10	2.97	3.80	3.52	3.62	4.68
3,	2.92	2.66	2.68	3.31	7.43	4.14	3.14	2.94	8.40	3.58	4.72	4.42
4,	2.86	2.66	2.65	3.21	5.88	4.00	3.14	2.94	‡8.02	3.42	4.85	4.20
5,	2.96	2.64	2.65	3.21	5.13	3.94	3.00	3.04	6.00	3.45	4.52	4.00
6,	2.86	2.69	2.65	3.31	5.48	3.94	3.00	3.04	5.10	3.22	6.25	4.42
7,	2.84	2.64	2.93	6.91	5.85	3.90	3.00	2.90	4.65	3.28	5.80	‡‡5.82
8,	2.89	2.56	4.48	8.61	4.91	3.64	3.07	2.84	4.25	3.40	4.78	4.75
9,	2.92	2.76	4.33	5.93	4.58	3.82	3.02	2.92	3.98	3.48	5.08	4.32
10,	2.92	2.62	4.01	4.98	4.21	3.30	3.07	2.90	3.82	3.48	6.15	4.12
11,	2.86	2.59	3.73	4.31	4.11	3.82	3.10	2.77	3.72	3.35	4.78	4.00
12,	2.84	2.59	3.58	6.71	4.21	4.27	3.14	2.87	3.70	3.30	4.62	4.38
13,	2.79	2.62	3.41	†11.03	4.93	4.07	3.14	2.92	4.58	3.42	5.60	4.12
14,	2.76	2.62	3.28	7.88	4.95	4.00	3.17	2.90	4.18	3.38	4.78	3.72
15,	2.86	2.74	3.55	5.95	6.65	3.67	3.07	3.02	3.75	3.28	4.55	3.72
16,	2.96	3.16	3.41	5.31	7.15	3.97	2.94	2.95	3.62	3.40	4.22	3.62
17,	3.09	3.06	3.41	4.98	5.85	3.84	3.04	2.90	3.50	3.35	3.98	3.52
18,	2.99	3.06	3.21	5.43	5.25	3.77	3.04	2.85	3.42	3.30	3.82	3.50
19,	3.02	2.84	3.18	7.11	4.85	3.64	2.92	2.90	3.30	3.28	3.78	5.15
20,	2.89	2.69	3.23	6.35	4.58	3.70	2.92	2.85	3.42	4.18	3.62	4.60
21,	2.82	2.69	3.35	5.55	4.43	3.57	3.04	2.92	3.48	3.98	3.55	4.22
22,	2.72	2.72	3.35	5.15	4.21	3.42	2.94	5.15	3.35	3.58	§11.77	[illegible]
23,	2.69	2.62	3.73	4.65	4.15	3.44	3.04	5.35	3.38	3.40	8.79	3.95
24,	2.66	2.66	3.58	4.61	5.03	3.44	2.92	4.45	3.20	3.38	5.38	3.70
25,	2.72	2.56	3.55	4.53	8.48	3.32	3.10	4.12	3.20	3.25	4.88	3.68
26,	2.84	2.62	3.25	4.51	6.11	3.27	3.02	3.85	3.20	3.32	4.45	3.52
27,	2.66	2.59	3.43	4.11	5.25	3.22	2.92	3.65	3.18	3.48	4.20	3.50
28,	2.64	2.62	3.26	4.01	4.91	3.22	2.94	3.50	3.15	3.75	4.08	3.45
29,	2.76	2.62	3.25	3.83	....	3.17	2.94	3.35	3.12	3.52	5.48	3.40
30,	2.66	2.66	3.31	3.71	....	3.14	3.30	3.50	3.12	3.80	6.35	3.30
31,	2.66	....	3.45	3.65	....	3.12	....	3.82	....	3.42	6.50	....

Notes.—†Maximum 11.48 ft. at 10.30 A. M. ‡Maximum 10.20 ft. at 4 A. M. from hydrograph. §Maximum 12.91 ft. from levels. ‡‡Maximum 6.30 ft. at 6.35 A. M.

DAILY DISCHARGE, IN SECOND-FEET, OF CONODOGUINET CREEK AT BRYSONS BRIDGE, CUMBERLAND COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	231	152	122	441	878	1050	302	276	600	306	486	1470
2,	248	152	130	418	5980	902	287	241	600	459	505	1120
3,	224	144	149	369	3550	794	302	231	4900	486	1140	962
4,	204	144	141	329	1990	710	302	231	‡4330	414	1240	830
5,	237	138	141	329	1430	677	251	265	2090	428	1020	710
6,	204	152	141	369	1680	677	251	265	1410	333	2300	962
7,	198	138	227	2960	1580	655	251	217	1100	357	1930	‡‡1950
8,	214	117	998	5230	1280	515	276	198	860	405	1190	1160
9,	224	173	908	2030	1060	611	258	224	699	441	1400	902
10,	224	133	716	1330	836	600	276	217	611	441	2220	782
11,	204	124	562	896	776	611	287	176	556	385	1190	710
12,	198	124	486	2760	836	872	302	207	545	365	1080	938
13,	182	133	410	†10400	1290	752	302	224	1060	414	1770	782
14,	173	133	357	4130	1300	710	314	217	818	397	1190	556
15,	204	167	472	2050	2700	530	276	258	572	357	1040	556
16,	237	310	410	1560	3220	694	231	234	505	405	842	505
17,	283	273	410	1330	1970	622	265	217	450	385	699	459
18,	248	273	329	1640	1520	583	265	201	414	365	611	450
19,	258	198	317	3170	1240	515	224	217	365	357	589	1440
20,	214	152	337	2400	1060	545	224	201	414	818	505	1070
21,	191	152	385	1730	968	482	265	224	441	699	472	842
22,	161	161	385	1440	836	414	231	1440	385	486	§12500	830
23,	152	133	562	1100	800	423	265	1580	397	405	5520	682
24,	144	144	486	1080	1360	423	224	980	325	397	1610	545
25,	161	117	472	1030	5020	373	287	782	325	345	1260	535
26,	198	133	345	1020	2180	353	258	628	325	373	980	459
27,	144	124	418	776	1520	333	224	520	317	441	830	450
28,	138	133	345	716	1280	333	231	450	306	572	758	428
29,	173	133	345	616	....	314	231	385	296	459	1680	406
30,	144	144	369	550	....	302	365	450	296	600	2400	365
31,	144	....	428	520	....	295	....	611	....	414	2550	....

Notes—†Maximum=11600 sec.-ft. ‡Maximum=8320 sec.-ft. §Maximum=16100 sec.-ft. ‡‡Maximum= 2350 sec.-ft. Discharges above 7850 sec.-ft. are estimated.

ESTIMATED MONTHLY DISCHARGE OF CONODOGUINET CREEK AT BRYSONS BRIDGE, CUMBERLAND COUNTY, PA.

(Drainage area 460 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	283	138	199	0.43	0.50
November,	310	117	157	0.34	0.38
December,	998	122	397	0.86	0.99
1915.					
January,	††11600	329	1770	3.85	4.44
February,	5930	776	1790	3.89	4.05
March,	1060	295	570	1.24	1.43
April,	365	224	268	0.58	0.65
May,	1580	176	405	0.88	1.02
June,	††8320	295	877	1.91	2.13
July,	818	306	436	0.95	1.10
August,	††16100	472	1730	3.76	4.34
September,	2350	365	795	1.73	1.93
The year,	††16100	117	783	1.70	22.96

Note.—††Estimated.

SUSQUEHANNA BASIN—STATION NO. 36.

SUSQUEHANNA RIVER AT HARRISBURG, PA.

DESCRIPTION OF STATION.

LOCATION—At 15 span, steel, through-truss, highway bridge at Walnut Street, Harrisburg, Dauphin County.

RECORDS AVAILABLE—Discharge complete from January 1, 1891, to September 30, 1915. For other records on this river see Susquehanna River at Selinsgrove; also Susquehanna River at McCalls Ferry in the 1910-11 Report of the Water Supply Commission.

DRAINAGE AREA—24,100 square miles.

GAGE—A standard chain gage, whose elevation of zero is 289.4 feet above mean sea level, is located on the upstream side of the bridge and is read twice daily by employes of the Water Supply Commission.

CHANNEL—Both banks are high and not subject to overflow, and the bed is composed of gravel and boulders.

REMARKS—During 1913, 1914 and 1915 a 4½ foot dam 4,200 feet below the bridge was under construction which has caused backwater at the gage.

DISCHARGE MEASUREMENTS OF SUSQUEHANNA RIVER AT HARRISBURG, DAUPHIN COUNTY, PA.

(Drainage area 24,100 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1914		Sq. ft.	Feet.	Sec. ft.	
59	Oct. 5	Wilson & Gough, ...	5939	0.78	3399	0.6 method.
60	Oct. 19	Wilson & Gough, ...	6828	1.22	4980	0.6 method.
61	Nov. 5	Taylor & Gough, ...	8516	1.90	4222	0.6 method.
62	Nov. 24	Wilson, Gough, Brady & Shade.	9770	2.40	5702	East channel—0.6 method. West channel—surface method.
63	Dec. 3	Wilson, Brady, Taylor & Gough.	9251	2.16	4726	0.6 method.
64	Dec. 10	Bowen, Shade, Wilson & Brady.	12756	3.57	14118	0.6 method.
	1915					
65	Jan. 5	Bowen, Wilson, Taylor & Gough.	9804	2.87	8132	Under ice cover. Vertical velocity method.
66	Jan. 13	Batley & Nugent, ...	32186	11.04	152338	Surface method.
67	Jan. 22	Taylor, Gough, Wilson & Brady.	27863	9.46	122868	Surface method.
68	Feb. 17	Reckord & Brady, ...	36619	12.82	205352	Surface method.
69	Feb. 26	Wilson, Gough, Brady & Shade.	43761	15.50	276087	Surface method.
70	May 25	Reckord, Taylor, Brady & Gough.	18401	5.80	49817	0.6 method.

DISCHARGE TABLE FOR SUSQUEHANNA RIVER AT HARRISBURG, DAUPHIN COUNTY, PA., FROM OCTOBER 1, 1914, TO OCTOBER 19, 1914.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
0.60	2940	.80	3440	1.00	4040	.20	4810	.30	5270
.70	3180	.90	3720	.10	4400				

Note:—This table is based on two discharge measurements.

DISCHARGE TABLE FOR SUSQUEHANNA RIVER AT HARRISBURG, DAUPHIN COUNTY, PA., FROM NOVEMBER 5, 1914, TO SEPTEMBER 15, 1915.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
1.80	4000	.70	29900	.60	82100	.50	142400	.40	218000
.90	4170	.80	31500	.70	84000	.60	144700	.50	220900
2.00	4370	.90	33100	.80	86000	.70	147000	.60	223800
.10	4610	5.00	34700	.90	88000	.80	149300	.70	226700
.20	4900	.10	36300	8.00	90000	.90	151700	.80	229600
.30	5260	.20	38000	.10	92000	11.00	154100	.90	232500
.40	5700	.30	39700	.20	94000	.10	156500	14.00	235400
.50	6160	.40	41400	.30	96000	.20	158900	.10	238300
.60	6690	.50	43100	.40	98000	.30	161400	.20	241200
.70	7270	.60	44800	.50	100000	.40	163900	.30	244100
.80	7900	.70	46600	.60	102000	.50	166400	.40	247000
.90	8600	.80	48400	.70	104100	.60	168900	.50	249900
3.00	9340	.90	50200	.80	106200	.70	171400	.60	252800
.10	10100	6.00	52000	.90	108300	.80	174000	.70	255700
.20	10890	.10	53800	9.00	110400	.90	176600	.80	258600
.30	11730	.20	55600	.10	112500	12.00	179200	.90	261500
.40	12600	.30	57400	.20	114600	.10	181900	15.00	264400
.50	13500	.40	59300	.30	116700	.20	184600	.10	267400
.60	14500	.50	61200	.40	118800	.30	187300	.20	270400
.70	15600	.60	63100	.50	120900	40	190000	.30	273400
.80	16800	.70	65000	.60	123000	.50	192800	40	276400
.90	18100	.80	66900	.70	125100	.60	195600	.50	279400
4.00	19500	.90	68800	.80	127200	.70	198400	.60	282400
.10	20900	7.00	70700	.90	129300	.80	201200	.70	285400
.20	22300	.10	72600	10.00	131400	.90	204000	.80	288400
.30	23700	.20	74500	.10	133600	13.00	206800	.90	291500
.40	25200	.30	76400	.20	135800	.10	209600	16.00	294600
.50	26700	.40	78300	.30	138000	.20	212400		
.60	28300	.50	80200	.40	140200	.30	215200		

Note.—This table is only applicable for the above period and is based on nine discharge measurements.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF SUSQUEHANNA RIVER AT HARRISBURG, DAUPHIN COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.68	1.86	2.20	....	4.77	8.45	4.45	4.42	4.63	2.97	3.91	4.62
2,	0.74	1.89	2.17	....	6.31	7.27	4.33	4.61	4.60	3.89	3.92	4.45
3,	0.74	1.86	2.16	....	8.97	6.54	4.25	4.43	5.10	4.94	4.10	4.20
4,	0.75	1.87	2.36	....	8.62	6.02	4.07	4.30	6.78	5.81	4.64	4.00
5,	0.78	1.89	2.39	....	7.61	5.69	3.99	4.29	6.48	6.37	5.66	3.88
6,	0.78	1.88	2.37	....	6.95	5.53	3.88	4.46	5.72	6.31	7.19	3.80
7,	0.80	1.83	2.63	....	6.65	5.23	3.86	4.55	5.13	5.99	7.26	4.05
8,	0.86	1.82	3.21	10.32	6.37	5.01	3.86	4.59	4.65	5.57	7.47	3.86
9,	0.83	1.89	3.78	11.84	6.03	4.90	4.24	4.47	4.40	5.59	6.38	3.82
10,	0.86	1.86	3.55	9.86	5.65	4.77	4.87	4.30	4.12	†10.29	5.86	3.68
11,	0.82	1.83	3.39	7.89	5.34	4.66	5.29	4.25	3.93	10.56	5.45	3.58
12,	0.79	1.83	3.24	7.30	5.17	4.65	5.94	4.21	3.76	8.26	5.23	3.59
13,	0.82	1.85	3.15	10.43	5.01	4.61	6.51	4.09	3.68	7.08	5.12	3.46
14,	0.79	1.79	3.09	10.02	5.25	4.52	6.44	3.97	3.67	6.43	4.79	3.33
15,	0.82	1.94	*	8.12	6.13	4.49	6.06	3.90	3.58	6.28	4.55	3.31
16,	0.98	2.09	....	7.36	10.01	4.49	5.51	3.77	3.46	6.03	4.39	3.27
17,	1.07	2.19	....	6.58	12.40	4.47	5.09	3.67	3.46	5.53	4.49	3.19
18,	1.18	2.34	....	6.20	11.43	4.48	4.79	3.60	3.49	5.13	4.23	3.94
19,	1.23	2.59	....	7.41	9.39	4.48	4.55	3.59	3.36	4.89	4.07	4.04
20,	1.30	2.69	....	10.87	7.96	4.47	4.45	3.61	3.33	5.09	3.92	3.90
21,	1.31	2.61	....	11.29	7.11	4.42	4.27	3.57	3.39	4.71	3.76	3.99
22,	1.30	2.52	....	9.60	6.59	4.29	4.11	3.92	3.42	4.39	5.18	4.10
23,	1.19	2.49	....	8.26	6.42	4.23	4.08	4.99	3.44	4.19	6.13	4.16
24,	1.16	2.87	....	7.04	6.83	4.26	3.95	5.94	3.28	4.05	5.68	4.07
25,	1.34	2.34	....	6.56	11.24	4.25	3.87	5.81	3.24	3.95	5.83	3.82
26,	1.44	2.33	....	5.92	15.52	4.35	3.77	5.77	3.15	3.83	5.43	3.80
27,	1.59	2.21	....	5.64	13.83	4.32	3.73	5.46	3.11	3.76	4.96	3.64
28,	1.80	2.19	....	5.40	10.81	4.62	3.71	5.19	3.02	3.81	4.62	3.56
29,	1.88	2.15	....	5.29	....	4.78	3.79	4.93	2.96	3.99	4.58	3.42
30,	1.89	2.21	....	4.78	....	4.76	4.17	4.72	2.82	4.04	4.88	3.32
31,	1.89	....	....	4.71	....	4.56	....	4.65	....	4.11	4.84	....

Notes—*River frozen December 15, 1914, to January 7, 1915, inclusive. †Maximum 11.15 ft. at 5 P. M.

DAILY DISCHARGE, IN SECOND-FEET, OF SUSQUEHANNA RIVER AT HARRISBURG, DAUPHIN COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	3130	4860	4900	6750	31000	99000	26000	25500	28800	9120	18200	28600
2,	3280	4970	4810	6750	57600	75800	24200	28500	28300	18000	18400	26000
3,	3280	4860	4780	6750	110000	62000	23000	25600	36300	33700	20900	22300
4,	3310	4900	5520	6750	102000	52400	20500	23700	65600	48600	28900	19500
5,	3390	4150	5660	6750	82300	46400	19400	23600	60800	58700	45900	17800
6,	3390	4140	5570	6750	69800	43600	17800	26100	47000	57600	74300	16800
7,	3440	4050	6860	41200	64000	38500	17600	27500	36800	51800	75600	20200
8,	3610	4030	11000	138000	58700	34900	17600	28100	29100	44300	79600	17600
9,	3520	4150	16600	175000	52500	33100	22900	26200	25200	44600	58900	17100
10,	3610	4080	14000	128000	45700	31000	32600	23700	21200	†138000	49500	15400
11,	3500	4050	12500	87800	40400	29300	39500	23000	18500	144000	42200	14300
12,	3410	4050	11200	76400	37500	29100	50900	22400	16300	95200	38500	14400
13,	3500	4080	10500	141000	34900	28500	61400	20800	15400	71300	36600	13100
14,	3410	3980	10000	132000	38800	27000	60100	19100	15300	59900	31300	12000
15,	3500	4250	*5540	92400	54300	26600	53100	18100	14300	57000	27500	11800
16,	3980	4590	5540	77500	132000	26600	43300	16400	13100	52500	25000	10800
17,	4290	4870	5540	62700	190000	26200	36100	15300	13100	43600	26600	10200
18,	4730	5440	5540	55600	165000	26400	31300	14500	13400	36800	22700	17900
19,	4950	6640	5540	78500	119000	26400	27500	14400	12200	32900	20500	19200
20,	4100	6640	5540	151000	89200	26200	26000	14600	12000	36100	18400	17400
21,	4130	6750	5540	161000	72800	25500	23300	14200	12500	30100	16300	17800
22,	4100	6270	5540	123000	62900	23600	21000	18400	12800	25000	37700	19300
23,	3820	6110	5540	95200	59700	22700	19900	34500	13000	22200	54300	20200
24,	3740	5570	5540	71500	67500	23100	18800	50900	11600	20200	46200	18900
25,	4220	5440	5540	62300	160000	23000	17700	48600	11200	18800	48900	15800
26,	3800	5390	5540	50600	280000	24400	16400	47900	10500	17200	41900	15000
27,	4120	4940	5540	45500	230000	24000	16000	42400	10200	16300	34100	13300
28,	4660	4870	5540	41400	150000	28600	15700	37800	9490	16900	28600	12400
29,	4930	4760	5540	38000	....	31200	16700	33600	9040	19400	28000	11100
30,	4970	4940	5540	30400	....	30900	21900	30200	8040	20100	32800	10200
31,	4970	....	5540	30100	....	27700	....	29100	....	21000	32100	....

Notes—*River frozen December 15, 1914, to January 7, 1915, inclusive, and discharge estimated from Juniata River at Newport, West Branch Susquehanna River at Williamsport and North Branch Susquehanna River at Danville. †Maximum=158000 sec.-ft..

The discharges from October 20 to November 4, 1914, and from September 16 to 30, 1915, inclusive, are estimated from interpolated curves, necessitated by the construction of a low dam 4200 feet below gaging station.

ESTIMATED MONTHLY DISCHARGE OF SUSQUEHANNA RIVER AT HARRISBURG, DAUPHIN COUNTY, PA.

(Drainage area 24,100 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	4970	3180	3900	0.16	0.18
November,	6750	3960	4930	0.20	0.22
December,	16600	....	7020	0.29	0.33
1915.					
January,	175000	....	71800	2.98	3.44
February,	280000	31000	94900	3.94	4.10
March,	99000	22700	34600	1.44	1.66
April,	61400	15700	27900	1.16	1.29
May,	50900	14200	26600	1.10	1.27
June,	65600	8040	21000	0.87	0.97
July,	158000	9120	43900	1.82	2.10
August,	79600	16900	37400	1.55	1.79
September,	28600	10200	16500	0.68	0.76
The year,	280000	....	32500	1.35	18.11

Note:—River frozen December 15, 1914, to January 7, 1915, inclusive, and discharge estimated from Juniata River at Newport, West Branch Susquehanna River at Williamsport, and North Branch Susquehanna River at Danville. The discharges from October 20 to November 4, 1914, and from September 16 to 30, 1915, inclusive, are estimated from interpolated curves, necessitated by the construction of a low dam 4200 feet below gaging station.

SUSQUEHANNA BASIN—STATION NO. 37.

YELLOW BREECHES CREEK AT OLMSTEDS MILL, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge just below mill dam about one mile south of White Hill Station, Cumberland County.

RECORDS AVAILABLE—Discharge complete from March 23, 1909, to October 31, 1909, and January 22, 1910, to September 30, 1915.

DRAINAGE AREA—223 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge and is read twice daily by J. P. Wrightstone.

CHANNEL—Both banks are high and not subject to overflow, and the bed is fairly permanent.

REMARKS—The tail-race of the mill on the left bank 300 feet above the bridge comes in a short distance above the left abutment and, when the mill is running all its wheels, water may be raised a little higher at left side of span. Water runs over the dam at all stages. This stream keeps up a remarkably high dry weather flow on account of limestone springs upon its watershed.

DISCHARGE MEASUREMENTS OF YELLOW BREECHES CREEK AT OLMSTEDS MILL, CUMBERLAND COUNTY, PA.

(Drainage area 223 square miles.)

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915		Sq. ft.	Feet.	Sec. ft.	
28	April 27	Brady & Gough, ...	274	1.10	215	Vertical velocity method.
29	Aug. 23	Bowen & Taylor, ...	509	3.17	989	0.6 method.

DISCHARGE TABLE FOR YELLOW BREECHES CREEK AT OLMSTEDS MILL, CUMBERLAND COUNTY, PA FROM JANUARY 1, 1914.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
0.50	80	.10	580	.70	1305	.30	2265	.90	3650
.60	90	.20	620	.80	1360	.40	2335	7.00	3750
.70	105	.30	660	.90	1415	.50	2405	.10	3850
.80	125	.40	705	4.00	1470	.60	2480	.20	3[illegible]
.90	145	.50	750	.10	1525	.70	2560	.30	4055
1.00	175	.60	795	.20	1580	.80	2640	.40	4160
.10	205	.70	840	.30	1635	.90	2725	.50	4270
.20	235	.80	885	.40	1695	6.00	2815	.60	4380
.30	270	.90	930	.50	1755	.10	2905	.70	4495
.40	30[illegible]	3.00	975	.60	1815	.20	2995	.80	4610
.50	340	.10	1020	.70	1875	.30	3085	.90	4730
.60	380	.20	106[illegible]	.80	1935	.40	3175	8.00	4850
.70	420	.30	1110	.90	1995	.50	3270		
.80	460	.40	1155	5.00	2060	.60	3365		
.90	500	.50	1205	.10	2125	.70	3460		
2.00	540	.60	1255	.20	2195	.80	3555		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF YELLOW BREECHES CREEK AT OLMSTEDS MILL, CUMBERLAND COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.80	0.81	0.82	0.76	2.96	2.17	1.29	1.21	1.81	1.01	1.13	1.87
2,	0.78	0.83	0.82	0.72	‡4.93	2.09	1.25	1.08	1.77	0.95	0.98	1.79
3,	0.79	0.81	0.82	0.70	3.71	1.99	1.19	1.08	3.38	0.91	0.97	1.79
4,	0.80	0.83	0.82	0.74	3.35	1.91	1.15	1.12	3.04	0.91	2.00	1.76
5,	0.78	0.85	0.83	0.74	3.10	1.83	1.17	1.12	2.43	0.89	1.47	1.71
6,	0.78	0.83	0.84	0.76	2.74	1.79	1.17	1.09	2.12	0.91	3.63	1.81
7,	0.82	0.83	0.88	4.20	2.32	1.87	1.19	1.08	1.91	0.98	2.35	4.23
8,	0.86	0.84	1.42	3.11	2.07	1.79	1.15	1.10	1.79	1.05	1.71	3.49
9,	0.84	0.87	1.30	1.22	1.99	1.75	1.19	1.12	1.62	1.10	1.68	2.32
10,	0.84	0.89	1.18	1.11	1.84	1.75	1.20	1.08	1.51	0.99	1.48	1.96
11,	0.82	0.89	1.10	1.17	1.76	1.71	1.23	1.06	1.43	0.97	1.30	1.86
12,	0.83	0.89	1.00	3.35	1.80	1.77	1.51	1.06	1.33	1.08	1.61	2.08
13,	0.84	0.89	0.91	†6.41	1.98	1.75	1.41	1.06	1.31	1.01	1.73	1.90
14,	0.86	0.87	0.84	4.02	1.94	1.71	1.33	1.04	2.19	0.98	1.65	1.79
15,	0.94	0.85	0.82	2.98	2.28	1.69	1.26	1.00	1.70	0.97	1.49	1.61
16,	0.98	1.27	0.80	2.37	3.14	1.65	1.17	1.09	1.47	0.98	1.23	1.49
17,	0.96	1.17	0.81	2.31	2.43	1.63	1.15	1.02	1.45	0.95	1.13	1.47
18,	0.90	0.99	0.82	2.63	2.15	1.61	1.15	0.94	1.43	0.93	1.10	1.47
19,	0.86	0.93	0.82	2.97	2.08	1.63	1.14	0.94	1.41	0.93	1.07	1.75
20,	0.86	0.87	0.82	2.51	1.96	1.67	1.16	0.97	1.37	0.91	1.07	1.61
21,	0.85	0.83	0.84	2.24	1.87	1.61	1.14	1.04	1.35	0.91	1.13	2.06
22,	0.86	0.83	1.02	2.05	1.86	1.59	1.09	2.40	1.31	0.97	§7.26	1.90
23,	0.86	0.83	1.00	2.08	1.86	1.58	1.09	1.88	1.26	0.96	3.79	1.75
24,	0.84	0.81	0.98	2.10	3.20	1.53	1.09	1.56	1.21	0.98	2.63	1.57
25,	0.85	0.79	0.96	2.10	3.50	1.50	1.11	1.53	1.15	0.93	2.06	1.39
26,	0.89	0.79	0.96	1.96	2.78	1.47	1.11	1.44	1.03	0.85	1.89	1.29
27,	0.88	0.79	0.92	1.84	2.59	1.43	1.09	1.36	0.97	0.84	1.73	1.27
28,	0.88	0.75	0.90	1.81	2.32	1.37	1.15	1.28	0.95	0.83	1.78	1.27
29,	0.88	0.75	0.86	1.76	....	1.33	1.19	1.24	0.94	0.85	1.94	1.28
30,	0.86	0.82	0.86	1.52	....	1.31	1.41	1.33	0.93	1.23	2.65	1.29
31,	0.84	....	0.82	1.49	....	1.31	....	1.36	....	1.19	2.28	....

Notes—†Maximum 8.60 ft. at 1 A. M. from hydrograph. ‡Maximum 5.43 ft. at 8 A. M. §Maximum 8.61 ft. at 7 A. M.

DAILY DISCHARGE, IN SECOND-FEET, OF YELLOW BREECHES CREEK AT OLMSTEDS MILL, CUMBERLAND COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	125	127	129	117	957	608	266	238	274	178	214	488
2,	121	131	129	109	‡2010	576	252	199	448	160	154	456
3,	123	127	129	105	1310	536	232	199	1120	148	166	456
4,	125	131	129	113	1130	504	220	211	993	148	540	444
5,	121	135	131	113	1020	472	226	211	718	143	330	424
6,	121	131	133	117	858	456	226	202	588	148	1270	464
7,	129	131	141	1580	669	488	232	199	504	154	682	1600
8,	137	133	312	1020	568	456	220	205	456	190	424	1200
9,	133	139	270	242	586	440	232	211	388	205	412	669
10,	133	143	229	208	476	440	235	199	344	172	333	524
11,	129	143	205	226	444	424	246	193	316	166	302	484
12,	131	148	175	1130	460	448	344	198	280	184	384	552
13,	133	143	148	†3180	532	440	308	193	274	178	432	500
14,	137	139	133	1480	516	424	280	187	616	169	400	456
15,	157	135	129	966	652	416	256	175	420	166	336	384
16,	169	260	125	692	1040	400	226	202	330	169	246	336
17,	163	226	127	664	718	392	220	181	322	160	214	330
18,	145	172	129	808	600	384	220	157	316	154	205	330
19,	137	154	129	962	572	392	217	157	308	154	196	440
20,	137	139	129	754	524	408	223	166	294	148	196	384
21,	135	131	133	636	488	384	217	187	288	148	214	564
22,	137	131	181	560	484	376	202	705	274	166	§4010	500
23,	137	131	175	552	484	372	202	492	256	163	1350	440
24,	133	127	169	580	1060	352	202	364	238	154	808	368
25,	135	123	163	580	1200	340	208	352	220	154	564	302
26,	143	123	163	524	876	330	208	319	181	135	496	266
27,	141	123	151	476	790	316	202	291	166	133	432	260
28,	141	115	145	464	669	294	220	263	160	131	452	260
29,	141	115	137	444	....	280	232	249	157	135	516	263
30,	137	129	137	348	....	274	308	280	154	246	818	266
31,	133	....	129	336	....	274	....	291	....	232	652	....

Notes.—†Maximum=5530 sec.-ft. ‡Maximum=2360 sec.-ft. §Maximum=5550 sec.-ft.

ESTIMATED MONTHLY DISCHARGE OF YELLOW BREECHES CREEK AT OLMSTEDS MILL, CUMBERLAND COUNTY, PA.

(Drainage area 223 square miles.)

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	169	121	136	0.61	0.70
November,	260	115	141	0.63	0.70
December,	312	125	156	0.70	0.81
1915.					
January,	5530	105	648	2.91	3.36
February,	2360	444	773	3.47	3.61
March,	608	274	410	1.84	2.12
April,	344	202	236	1.06	1.18
May,	705	157	247	1.11	1.28
June,	1120	154	380	1.70	1.90
July,	246	131	164	0.74	0.85
August,	5550	154	572	2.57	2.96
September,	1600	260	480	2.15	2.40
The year,	5550	105	362	1.62	21.87

SUSQUEHANNA BASIN—STATION NO. 38.

SWATARA CREEK AT JONESTOWN, PA.

DESCRIPTION OF STATION.

LOCATION—At two span, steel, through-truss, highway bridge at Jonestown, Lebanon County.

RECORDS AVAILABLE—Discharge complete from November 21, 1910, to September 30, 1914, and discharge measurements and gage heights from October 1, 1914, to September 30, 1915.

DRAINAGE AREA—190 square miles.

GAGE—A sectional chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge and is read twice daily by employes of the Lebanon Valley Consolidated Water Supply Company.

CHANNEL—Both banks are low but water passes under the bridge at all stages, and the bed is composed of gravel and culm.

REMARKS—There is a mill dam about 6 miles above, which stores water at night. This station is maintained in co-operation with the Lebanon Valley Consolidated Water Supply Company. Due to change in rating curve, the discharge for this year is withheld

DISCHARGE MEASUREMENTS OF SWATARA CREEK AT JONESTOWN, LEBANON COUNTY, PA.

(Drainage area 190 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1914.		Sq. ft.	Feet.	Sec.ft.	
24	Nov. 11	Reckord, ...	150	3.11	33	Surface & 0.6 method.
	1915.					
25	Aug. 24	Bowen & Taylor, ...	503	5.36	1086	0.6 method.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF SWATARA CREEK AT JONESTOWN, LEBANON COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	3.08	3.30	3.16	4.25	4.70	4.50	....	3.12	3.52	3.50	3.30	4.10
2,	3.06	3.28	3.09	4.30	8.15	4.32	....	3.42	3.62	†5.30	4.10	3.82
3,	3.05	3.20	3.00	4.30	5.65	4.00	....	3.41	4.25	4.50	3.95	3.72
4,	3.02	3.20	3.00	4.00	5.30	4.00	....	3.98	3.85	3.95	4.65	3.75
5,	3.00	3.18	3.00	4.00	5.28	3.88	....	3.65	3.75	3.72	3.65	3.70
6,	3.00	3.18	3.01	4.10	5.65	3.90	3.45	3.44	3.28	3.50	3.68	4.10
7,	3.00	3.15	3.12	9.65	4.95	3.86	3.42	3.48	3.22	3.32	3.25	4.45
8,	3.00	3.10	4.55	5.95	4.80	3.90	3.35	3.50	3.25	3.55	3.41	4.30
9,	3.00	3.75	4.40	6.20	4.70	3.88	3.30	3.05	3.10	3.65	3.48	4.00
10,	3.05	3.00	4.28	6.25	4.35	3.88	3.26	3.30	3.10	3.50	3.45	4.00
11,	3.05	3.29	4.20	6.00	4.20	3.84	3.32	3.00	3.05	3.50	3.40	3.72
12,	3.12	3.11	4.20	6.95	4.22	3.86	3.48	3.08	3.00	3.50	3.41	3.40
13,	3.10	3.00	4.05	10.25	4.62	3.90	3.45	3.15	3.55	3.42	3.40	3.40
14,	3.10	3.00	4.42	6.25	4.30	3.92	3.56	3.00	3.50	3.58	3.62	3.32
15,	3.30	3.50	4.50	5.52	5.48	4.12	3.61	3.00	3.48	3.50	4.30	3.30
16,	3.26	4.70	*4.45	4.68	6.50	3.92	3.36	3.41	3.48	3.40	3.66	3.30
17,	3.28	4.66	4.41	4.72	5.50	3.90	3.22	3.41	3.45	3.52	3.72	3.30
18,	3.25	4.66	4.40	5.80	5.00	3.86	3.20	3.30	3.40	3.46	3.70	3.30
19,	3.21	4.65	4.00	6.00	4.70	3.85	3.24	3.38	3.38	3.00	3.62	4.48
20,	3.20	4.62	4.05	5.60	4.70	3.81	3.20	3.30	3.00	3.00	3.56	3.95
21,	3.18	4.52	4.42	5.48	4.62	3.80	3.42	3.29	3.00	3.00	3.60	3.95
22,	3.14	4.50	5.00	4.75	4.60	4.00	3.40	3.22	3.42	3.00	‡10.78	3.88
23,	3.15	4.46	5.00	4.58	4.60	3.90	3.44	3.48	3.25	3.00	6.85	3.75
24,	3.12	4.45	4.50	4.60	5.86	3.40	3.55	3.48	3.35	3.00	5.43	3.65
25,	3.11	4.00	4.40	4.41	7.46	3.20	3.40	3.28	3.00	3.00	4.96	3.30
26,	3.10	3.36	4.40	4.44	5.52	3.59	3.00	3.25	3.00	3.41	4.81	3.30
27,	3.00	3.35	4.20	4.42	5.05	3.50	3.05	3.18	3.00	3.43	4.70	3.28
28,	3.30	3.62	4.25	4.40	4.88	3.70	3.10	3.12	3.00	3.45	4.80	3.30
29,	3.28	3.00	4.10	4.35	....	3.40	3.28	3.15	3.28	3.41	4.70	3.25
30,	3.24	3.14	4.20	4.28	....	3.44	3.05	3.60	3.30	3.40	4.68	3.25
31,	3.22	....	4.25	4.35	....	3.42	....	3.52	....	3.30	4.30	....

Notes.—*Creek frozen December 16, 1914, to January 6, 1915, inclusive. †Maximum 7.20 ft. at 6 P. M. ‡Maximum 12.00 ft. at 9 A. M. from hydrograph.

OHIO BASIN

OHIO BASIN—STATION NO. 1.

ALLEGHENY RIVER AT LARABEE, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge on highway between Larabee and Coryville, McKean County.

RECORDS AVAILABLE—Discharge measurement and gage heights this river see Allegheny River at Franklin, Kittanning and Freeport; also Allegheny River at Red House, N. Y., in 1911 to 1914 reports of the Water Supply Commission.

DRAINAGE AREA—545 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the upstream side of the bridge and is read twice daily by L. A. Swift.

CHANNEL—The right bank is high and not subject to overflow, left bank is low and overflows, and the bed is composed of mud, gravel and stone.

REMARKS—This station is maintained in co-operation with the U. S. Engineer Office in Pittsburgh.

DISCHARGE MEASUREMENT OF ALLEGHENY RIVER AT LARABEE, McKEAN COUNTY, PA.

(Drainage area 545 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.ft.	
1	June 26	Inglefield, ...	97	1.13	174	Wading msmt. foundation of old timber dam 60 ft. below gage, 0.6 method.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF ALLEGHENY RIVER AT LARABEE, McKEAN COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	JUNE.	JULY.	AUG.	SEPT.
1,	....	6.09	1.84	2.58
2,	....	4.45	2.69	2.13
3,	....	7.30	6.54	1.93
4,	....	7.34	4.79	1.78
5,	....	6.70	4.24	1.68
6,	....	5.94	4.44	1.58
7,	....	4.65	4.09	1.88
8,	....	6.64	2.74	1.83
9,	....	11.06	2.94	1.63
10,	....	10.30	2.59	1.43
11,	....	8.95	2.09	1.28
12,	....	8.30	1.89	1.23
13,	....	6.80	1.89	1.93
14,	....	5.25	1.79	1.68
15,	....	4.30	1.79	1.43
16,	....	4.45	2.04	1.33
17,	....	4.30	2.04	1.13
18,	....	3.90	1.54	0.93
19,	....	3.30	1.49	5.08
20,	....	2.85	1.19	4.13
21,	....	2.65	1.44	2.43
22,	....	2.45	6.74	2.43
23,	....	2.25	6.34	2.08
24,	....	2.05	5.19	1.83
25,	....	1.90	4.79	1.73
26,	....	1.65	4.04	1.53
27,	....	2.35	3.24	2.28
28,	....	1.80	2.89	1.63
29,	0.91	2.10	3.34	1.48
30,	1.04	2.00	3.29	1.38
31,	....	2.30	2.84	....

OHIO BASIN—STATION NO. 2.

KINZUA CREEK AT DEWDROP, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge at Dewdrop, Warren County, 3 miles above the mouth.

RECORDS AVAILABLE—Discharge complete from November 1, 1909, to November 20, 1911, and July 22, 1912, to September 30, 1915.

DRAINAGE AREA—171 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge, and is read once daily, except Sundays, by C. R. Morrison.

CHANNEL—Both banks overflow at extreme stages, and the bed is composed of rocks and gravel.

DISCHARGE MEASUREMENT OF KINZUA CREEK AT DEWDROP, WARREN COUNTY, PA.

(Drainage area 171 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.ft.	
19	Sept. 30	Bronson & Gough, ...	126	1.81	91	0.6 method.

DISCHARGE TABLE FOR KINZUA CREEK AT DEWDROP, WARREN COUNTY, PA., FROM JANUARY 1, 1914.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.ft.	Feet.	Sec.ft.	Feet.	Sec.ft.	Feet.	Sec.ft.	Feet.	Sec.ft.
0.00	4	.70	168	.40	875	.10	2084	.80	3629
.10	6	.80	192	.50	933	.20	2169	.90	3724
.20	8	.90	218	.60	992	.30	2254	7.00	3819
.30	11	2.00	246	.70	1052	.40	2339	.10	3914
.40	15	.10	276	.80	1116	.50	2429	.20	4009
.50	20	.20	308	.90	1182	.60	2519	.30	4104
.60	26	.30	343	4.00	1248	.70	2609	.40	4199
.70	33	.40	381	.10	1316	.80	2699	.50	4299
.80	41	.50	423	.20	1384	.90	2789	.60	4399
.90	50	.60	467	.30	1454	6.00	2879	.70	4499
1.00	60	.70	512	.40	1524	.10	2969	.80	4604
.10	72	.80	558	.50	1599	.20	3059	.90	4714
.20	84	.90	606	.60	1674	.30	3154	8.00	4824
.30	98	3.00	656	.70	1754	.40	3249		
.40	112	.10	708	.80	1834	.50	3344		
.50	128	.20	762	.90	1914	.60	3439		
.60	146	.30	818	5.00	1999	.70	3534		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF KINZUA CREEK AT DEWDROP, WARREN COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.74	‖1.20	2.00	....	......	2.99	1.74	1.57	1.97	2.77	‖1.92	1.57
2,	0.72	0.90	2.32	....	5.59	2.59	1.72	‖1.67	1.72	2.77	2.37	1.47
3,	0.71	0.95	1.95	....	4.99	2.49	1.70	1.77	1.57	2.67	2.47	1.42
4,	0.70	0.98	1.70	....	*	2.39	‖1.68	2.07	1.47	‖2.24	2.57	1.36
5,	0.70	0.98	1.60	....	....	2.19	1.67	1.92	1.37	‖1.80	2.17	‖1.36
6,	0.69	0.98	‖1.55	....	....	2.14	1.93	1.95	‖1.40	1.37	1.97	1.37
7,	0.71	1.45	1.50	....	....	‖2.07	2.48	1.97	1.42	1.37	1.87	1.37
8,	0.70	‖1.38	1.40	....	....	1.99	2.58	2.32	1.57	4.07	‖1.87	1.32
9,	0.80	1.30	1.30	....	....	1.89	2.96	‖2.15	1.56	3.77	1.87	1.27
10,	0.95	1.20	1.30	....	....	1.89	2.95	1.97	1.37	3.67	1.67	1.22
11,	‖0.92	1.10	1.30	....	....	1.89	‖3.32	1.87	1.34	‖3.47	1.57	1.87
12,	0.90	1.10	1.35	....	....	1.79	3.68	1.82	1.27	3.27	1.47	‖1.32
13,	0.90	1.10	‖1.38	....	3.59	1.74	3.33	1.77	‖1.37	2.82	1.47	1.27
14,	1.00	1.10	1.42	....	‖3.89	‖1.71	2.91	1.77	1.47	2.47	1.47	1.22
15,	1.00	‖1.50	*	....	4.19	1.69	2.73	1.77	1.47	2.47	‖1.57	1.17
16,	1.40	1.90	....	....	3.99	1.69	2.58	‖2.02	1.67	2.47	1.67	1.07
17,	1.30	1.60	....	2.89	3.59	1.69	2.52	2.27	1.77	2.97	1.47	1.17
18,	‖1.30	1.40	....	3.79	3.39	1.68	‖2.35	1.97	1.87	‖2.72	1.37	1.17
19,	1.30	1.35	....	3.49	2.99	1.67	2.18	1.87	1.77	2.47	1.32	‖1.87
20,	1.00	1.30	....	3.09	2.89	1.67	1.98	1.72	‖1.64	1.97	1.27	2.57
21,	0.90	1.20	....	2.74	‖2.86	‖1.67	1.98	2.12	1.52	2.07	1.47	2.17
22,	0.95	‖1.25	....	2.69	‖2.82	1.67	1.88	3.12	1.51	2.17	‖1.97	1.97
23,	0.90	1.30	....	2.59	2.79	1.67	1.88	‖2.89	1.47	1.67	2.47	1.57
24,	0.88	1.30	....	‖2.49	3.19	1.69	1.78	2.67	1.41	1.77	1.97	1.36
25,	‖0.88	1.34	....	2.39	4.79	1.75	‖1.78	2.47	1.39	‖1.70	1.77	1.27
26,	0.87	‖1.34	....	2.29	4.39	1.79	1.68	2.37	1.37	1.62	1.77	‖1.50
27,	0.87	1.33	....	2.19	3.69	1.77	1.63	2.27	‖1.32	1.97	1.67	1.72
28,	0.85	1.40	....	2.09	‖3.31	‖1.77	1.88	2.17	1.27	1.67	1.57	1.57
29,	1.80	‖1.45	....	*	....	1.77	1.78	1.97	1.25	1.57	‖1.77	1.33
30,	1.50	1.50	....	....	....	1.77	1.68	‖1.97	3.37	1.77	1.97	1.27
31,	1.50	....	....	....	....	1.77	....	‖1.97	....	1.47	1.72	....

Notes.—*Creek frozen December 15, 1914, to January 6, 1915; gorged January 7 to 16, 1915; frozen January 29 to 31, 1915; gorged February 1, 1915; frozen February 4 to 12, 1915. ‖Interpolated.

DAILY DISCHARGE, IN SECOND-FEET, OF KINZUA CREEK AT DEWDROP, WARREN COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	36	84	246	53	1800	651	178	141	238	544	224	141
2,	35	50	351	53	2510	463	173	161	173	544	370	126
3,	34	55	232	53	1990	419	168	185	141	498	410	115
4,	33	58	168	53	*624	377	164	267	123	322	454	106
5,	33	58	146	53	624	305	161	224	108	192	298	106
6,	32	58	137	53	624	289	226	232	112	108	238	108
7,	34	120	128	1400	624	267	415	238	115	108	210	108
8,	33	109	112	1400	284	243	458	351	141	1300	210	101
9,	41	98	98	1400	284	215	636	292	139	1100	210	94
10,	55	84	98	236	284	215	631	238	108	1090	161	87
11,	52	72	98	236	284	215	829	210	104	918	141	108
12,	50	72	105	236	284	190	1040	197	94	801	123	101
13,	50	72	109	89	986	178	835	185	108	568	123	94
14,	60	72	115	89	1180	170	611	185	123	410	123	87
15,	60	128	*50	89	1380	166	526	185	123	410	141	80
16,	112	218	50	89	1240	166	458	252	161	410	161	68
17,	98	146	50	601	986	166	433	332	185	641	123	80
18,	98	112	50	1110	869	164	362	238	210	521	108	80
19,	98	105	50	927	651	161	302	210	185	410	101	210
20,	60	98	50	703	601	161	240	173	155	238	94	454
21,	50	84	50	530	587	161	240	282	132	267	123	298
22,	55	91	50	508	568	161	213	719	130	298	238	238
23,	50	98	50	463	553	161	218	601	123	161	410	141
24,	48	98	50	419	757	166	187	498	114	185	238	106
25,	48	104	50	377	1830	180	175	410	111	168	185	94
26,	47	104	50	340	1520	190	164	370	108	150	185	128
27,	47	102	50	305	1050	185	153	332	101	238	161	173
28,	46	112	50	273	841	185	213	298	94	161	141	141
29,	192	120	50	*89	....	185	187	238	91	141	185	102
30,	128	128	50	89	....	185	164	238	858	185	238	94
31,	128	....	50	89	....	185	....	238	....	123	173	....

Notes.—*Creek frozen December 15, 1914, to January 6, 1915; gorged January 7 to 16, 1915; frozen January 29 to 31, 1915; gorged February 1, 1915; frozen February 4 to 12, 1915, and discharge estimated from Brokenstraw Creek at Youngsville.

ESTIMATED MONTHLY DISCHARGE OF KINZUA CREEK AT DEWDROP, WARREN COUNTY, PA.

(Drainage area 171 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	192	32	63	0.37	0.43
November,	218	50	97	0.57	0.64
December,	....	....	97	0.57	0.66
1915.					
January,	....	....	400	2.34	2.70
February,	....	....	922	5.39	5.61
March,	651	161	230	1.35	1.56
April,	1040	153	358	2.09	2.33
May,	719	141	281	1.64	1.89
June,	858	91	157	0.92	1.03
July,	1300	108	424	2.48	2.86
August,	454	94	203	1.19	1.37
September,	454	68	132	0.77	0.86
The year,	....	....	280	1.64	21.94

Note.—Creek frozen December 15, 1914, to January 6. 1915; gorged January 7 to 16, 1915; frozen January 29 to 31, 1915; gorged February 1, 1915; frozen February 4 to 12, 1915, and discharge estimated from Brokenstraw Creek at Youngsville.

OHIO BASIN—STATION NO. 3.

CONEWANGO CREEK AT FREWSBURG, N. Y.

DESCRIPTION OF STATION.

LOCATION—At Whitman's Bridge, a single span, steel, through-truss, highway bridge, about one mile above Frewsburg, N. Y.

RECORDS AVAILABLE—Discharge measurements and gage heights from November 1, 1909, to September 30, 1915.

DRAINAGE AREA—690 square miles.

GAGE—A sectional chain gage, whose elevation of zero is arbitrary, is located on the downstream side of a railroad bridge, 75 feet upstream from the highway bridge, and is read once daily by Freeland P. Hobart.

CHANNEL—The right bank is a wide, low meadow; both banks overflow during high stages, and the bed is composed of clay and gravel.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF CONEWANGO CREEK AT FREWSBURG, CHATAUQUA COUNTY, N. Y., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.87	1.40	2.95	4.34	4.57	5.62	3.29	1.71	1.60	1.81	2.09	3.18
2,	0.85	1.37	6.90	4.19	8.87	4.64	2.59	1.84	1.64	1.69	3.89	2.68
3,	0.85	1.40	8.18	3.88	10.29	4.29	2.52	1.79	1.63	1.66	3.67	2.53
4,	0.82	1.41	7.55	3.49	10.09	3.94	2.49	1.69	1.74	2.81	4.27	2.38
5,	0.85	1.40	6.10	3.49	8.29	3.74	2.49	2.14	1.64	2.89	6.14	2.29
6,	0.80	1.45	4.90	3.56	8.14	‖3.54	2.84	2.49	1.47	2.64	5.74	2.26
7,	0.85	1.50	4.00	9.29	6.62	3.34	4.69	2.01	1.38	2.40	4.84	2.23
8,	0.88	1.55	3.77	10.22	6.09	3.39	4.49	4.30	1.31	6.85	4.08	2.16
9,	0.92	1.58	3.40	10.19	5.79	3.29	4.13	4.19	1.34	7.69	4.59	2.08
10,	1.09	1.60	‖3.45	10.17	5.14	3.17	4.09	3.79	1.32	7.21	4.59	1.98
11,	1.29	1.90	3.50	8.79	4.87	3.19	4.13	2.79	1.12	5.51	3.19	1.91
12,	1.30	2.10	3.57	‖7.19	6.99	3.21	3.79	2.71	1.01	†7.94	3.44	1.93
13,	1.25	2.60	3.40	5.59	9.34	3.04	3.59	2.04	0.99	8.19	3.79	2.08
14,	1.23	2.50	‖3.35	4.39	9.65	3.36	3.49	1.94	0.98	6.86	3.59	2.03
15,	1.17	3.00	3.30	4.17	10.34	3.39	3.42	1.84	2.09	5.64	3.69	‖2.02
16,	1.18	3.35	*3.00	3.89	10.89	3.54	2.84	1.70	3.44	3.66	3.47	2.00
17,	1.30	3.10	2.80	3.89	12.01	3.81	2.79	1.79	1.43	3.24	3.17	2.08
18,	2.45	3.00	2.70	6.39	10.44	2.94	2.69	2.00	0.99	3.22	3.02	2.13
19,	2.68	2.90	2.60	8.99	8.09	2.71	2.49	1.99	1.14	2.88	2.81	2.18
20,	2.32	2.65	2.57	8.90	5.99	2.69	2.29	1.89	0.99	2.95	2.59	2.13
21,	2.30	2.50	2.67	6.59	5.49	2.74	2.14	3.69	0.87	2.79	2.41	2.08
22,	1.63	2.25	2.64	5.99	4.39	2.81	2.09	6.65	0.94	2.67	3.59	1.98
23,	1.50	2.15	2.58	5.64	7.29	2.84	1.99	5.84	0.93	2.65	4.21	1.83
24,	1.45	2.10	2.50	4.89	8.09	2.89	2.04	3.77	0.94	2.37	3.71	1.78
25,	1.32	2.10	2.50	4.79	9.99	3.14	1.89	3.38	0.84	2.27	3.19	1.69
26,	1.30	6.43	2.60	*4.64	8.35	3.81	‖1.83	2.89	0.79	1.99	4.34	‖2.76
27,	1.33	6.90	2.50	4.34	8.11	3.54	1.77	2.61	0.71	1.98	3.62	3.83
28,	1.35	7.85	2.57	4.14	6.25	3.19	2.01	2.34	0.69	1.89	3.81	3.50
29,	1.37	6.85	2.59	3.87	....	3.79	1.89	2.09	0.67	4.09	4.19	3.13
30,	1.35	4.50	3.00	3.79	....	3.71	1.84	1.81	0.94	6.09	4.26	2.08
31,	1.37	....	4.05	3.54	....	3.69	....	1.61	....	4.49	3.69	....

Notes.—*Creek frozen December 16, 1914, to January 17, 1915, and January 26 to February 14, 1915. ‖Interpolated. †Maximum 8.54 ft. at 5.30 P. M.

OHIO BASIN—STATION NO. 4.

BROKENSTRAW CREEK AT YOUNGSVILLE, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge at Youngsville, Warren County, 3 miles above the mouth.

RECORDS AVAILABLE—Discharge complete from November 1, 1909 to September 30, 1915.

DRAINAGE AREA—290 square miles.

GAGE—A staff gage, whose elevation of zero is arbitrary, is located on the right abutment and is read twice daily by W. F. Schnell.

CHANNEL—The right bank is high and does not overflow, while the left bank overflows at high stages for a short distance under approach trestle. The bed is composed of clay and gravel, the section is deep and the current sluggish.

REMARKS—At gage height approximately 10 feet water leaves the regular creek channel about one-fourth mile above the gaging station and discharges through a flood channel to the west. Since the quantity of water flowing in the flood channel is unknown at the present time, discharges above gage height 10 feet have not been published.

DISCHARGE TABLE FOR BROKENSTRAW CREEK AT YOUNGSVILLE, WARREN COUNTY, PA., FROM JANUARY 1, 1913.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.ft.	Feet.	Sec.ft.	Feet.	Sec.ft.	Feet.	Sec.ft.	Feet.	Sec.ft.
—0.30	30	.60	437	.50	1765	.40	3775	.30	6790
—0.20	35	.70	485	.60	1855	.50	3905	.40	[illegible]
—0.10	40	.80	537	.70	1945	.60	4040	.50	7130
0.00	50	.90	592	.80	2035	.70	4175	.60	7300
.10	60	2.00	650	.90	2130	.80	4315	.70	7475
.20	71	.10	710	4.00	2225	.90	4460	.80	7650
.30	83	.20	775	.10	2325	6.00	4610	.90	7825
.40	97	.30	840	.20	2425	.10	4765	8.00	8000
.50	113	.40	905	.30	2525	.20	4925	.10	8175
.60	131	.50	[illegible]	.40	2630	.30	5090	.20	8350
.70	151	.60	1045	.50	2735	.40	5260	.30	8525
.80	173	.70	1120	.60	2840	.50	5430	.40	8700
.90	197	.80	1195	.70	2950	.60	5600	.50	8875
1.00	223	.90	1270	.80	3060	.70	5770	.60	9050
.10	251	3.00	1350	.90	3175	.80	5940	.70	9225
.20	[illegible]	.10	1430	5.00	3290	.90	6110	.80	9400
.30	316	.20	1510	.10	3405	7.00	6280	.90	9575
.40	353	.30	1595	.20	3525	.10	6450	9.00	9750
.50	393	.40	1680	.30	3650	.20	6620		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF BROKENSTRAW CREEK AT YOUNGSVILLE, WARREN COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	—0.20	—0.10	2.00	....	‡4.80	1.35	0.55	1.00	0.45	0.35	0.30	1.20
2,	—0.20	—0.10	2.70	....	4.55	1.15	0.50	1.00	0.40	0.50	0.40	0.75
3,	—0.20	—0.10	2.85	....	4.30	1.00	0.50	0.95	0.50	0.90	0.55	0.60
4,	—0.20	—0.10	2.50	....	2.90	0.90	0.50	0.75	0.45	1.70	2.20	0.60
5,	—0.20	0.00	2.00	....	2.65	0.90	0.50	1.10	0.40	1.90	2.25	0.50
6,	—0.20	0.05	1.30	....	2.60	0.85	0.45	1.00	0.35	1.10	1.35	0.50
7,	—0.20	0.10	0.95	†4.60	2.30	0.80	0.40	1.70	0.30	0.70	0.80	0.45
8,	—0.15	0.25	1.00	4.20	2.00	0.70	1.30	3.65	0.40	‡‡3.37	0.80	0.40
9,	—0.15	0.45	1.00	3.60	1.60	0.70	1.30	3.10	0.30	3.50	0.80	0.35
10,	—0.10	0.50	0.90	1.90	1.40	0.65	1.20	2.20	0.25	2.95	1.40	0.30
11,	—0.10	0.50	0.80	1.40	1.45	0.60	1.00	1.25	0.20	2.20	0.80	0.30
12,	—0.10	0.50	0.80	1.10	1.90	0.55	1.00	0.90	0.20	3.20	0.55	0.30
13,	—0.10	0.50	0.90	0.90	4.10	0.50	0.90	0.90	0.10	3.40	0.70	0.25
14,	0.00	0.50	0.55	0.70	3.80	0.50	0.80	0.80	0.05	3.05	0.80	0.20
15,	0.00	0.50	*	0.60	5.60	0.50	0.60	0.75	0.15	1.20	0.85	0.10
16,	0.10	0.60	....	0.55	4.80	0.50	0.60	0.70	0.60	1.10	1.25	0.10
17,	0.20	0.70	....	0.50	3.60	0.50	0.60	1.00	0.45	1.15	1.50	0.55
18,	0.35	0.55	....	1.60	2.90	0.50	0.50	0.90	0.35	1.05	1.10	0.60
19,	0.45	0.50	....	4.00	2.45	0.50	0.50	0.80	0.20	0.65	0.65	0.70
20,	0.40	0.55	....	3.00	2.10	0.45	0.50	0.70	0.05	0.55	0.50	0.60
21,	0.40	0.60	....	2.30	1.80	0.45	0.50	0.95	0.00	0.90	0.50	0.45
22,	0.30	0.55	....	1.70	1.75	0.50	0.45	3.15	0.30	0.65	3.20	0.30
23,	0.20	0.50	....	1.10	1.75	0.50	0.40	3.15	0.25	0.50	3.10	0.20
24,	0.15	0.50	....	1.00	3.30	0.75	0.40	2.20	0.15	0.45	2.70	0.20
25,	0.00	0.65	....	1.00	2.95	0.80	0.40	1.60	0.00	0.40	1.65	0.20
26,	—0.10	0.90	....	0.75	2.60	0.80	0.50	1.25	0.00	0.40	1.25	0.55
27,	—0.10	1.75	....	0.70	1.75	0.70	§1.97	0.95	0.00	0.50	1.10	1.40
28,	—0.10	1.85	....	0.70	1.60	0.70	1.55	0.80	0.00	0.35	0.95	1.20
29,	—0.10	1.45	....	0.70	....	0.65	1.20	0.70	-0.00	0.30	1.25	1.00
30,	—0.10	1.00	....	0.70	....	0.60	1.10	0.60	0.20	0.40	2.30	0.50
31,	0.00	....	....	0.70	....	0.60	....	0.60	....	0.35	1.70	....

Notes.—*Creek frozen December 15, 1914, to January 6, 1915, inclusive. †Maximum 4.8 ft. at 5 P. M. ‡Maximum 5.8 ft. at 5 P. M. §Maximum 2.9 ft. at 3 P. M. ‡‡Maximum 4.1 ft. at 5 P. M.

DAILY DISCHARGE, IN SECOND-FEET, OF BROKENSTRAW CREEK AT YOUNGSVILLE, WARREN COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	35	40	650	90	‡3060	335	122	223	105	90	83	282
2,	35	40	1120	90	2790	266	113	223	97	113	97	162
3,	35	40	1230	90	2520	223	113	210	113	197	122	131
4,	35	40	975	90	1270	197	113	162	105	485	775	131
5,	35	50	650	90	1080	197	113	251	97	592	808	113
6,	35	55	316	90	1040	185	105	223	90	251	335	113
7,	35	60	210	†2840	840	173	97	485	83	151	173	105
8,	38	77	223	2420	650	151	316	1900	97	‡‡1650	173	97
9,	38	105	223	1860	437	151	316	1430	83	1760	173	90
10,	40	113	197	592	353	141	282	775	77	1310	353	83
11,	40	113	173	353	873	131	223	299	71	775	173	83
12,	40	113	173	251	592	122	223	197	71	1510	122	83
13,	40	113	197	197	2320	113	197	197	60	1680	151	77
14,	50	113	122	151	2040	113	173	173	55	1890	173	71
15,	50	113	*83	131	4040	113	131	162	66	282	185	60
16,	60	131	83	122	3060	113	131	151	131	251	299	60
17,	71	151	83	113	1860	113	131	223	105	266	393	122
18,	90	122	83	437	1270	113	113	197	90	237	251	131
19,	105	113	83	2220	940	113	113	173	71	141	141	151
20,	97	122	83	1350	710	105	113	151	55	122	113	131
21,	97	131	83	840	537	105	113	210	50	197	113	105
22,	83	122	83	485	511	113	106	1470	83	141	1510	83
23,	71	113	83	251	511	113	97	1470	77	113	1430	71
24,	66	113	83	223	1600	162	97	775	66	105	1120	71
25,	50	141	83	223	1310	173	97	437	50	97	461	71
26,	40	197	83	162	1040	173	113	299	50	97	299	122
27,	40	511	83	151	511	151	§633	210	50	113	251	353
28,	40	564	83	151	437	151	415	173	50	90	210	282
29,	40	373	83	151	....	141	282	151	50	83	299	223
30,	40	223	83	151	....	131	251	131	71	97	840	113
31,	50	....	83	151	....	131	....	131	....	90	485	....

Notes.—*Creek frozen December 15, 1914, to January 6, 1915, inclusive, and discharge estimated from climatological data. †Maximum = 3060 sec.-ft. ‡Maximum = 4320 sec.-ft. §Maximum = 1270 sec.-ft. ‡‡Maximum = 2820 sec.-ft.

ESTIMATED MONTHLY DISCHARGE OF BROKENSTRAW CREEK AT YOUNGSVILLE, WARREN COUNTY.

(Drainage area 290 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	105	35	52	0.18	0.21
November,	564	40	148	0.51	0.57
December,	1230	....	254	0.88	1.01
1915.					
January,	3060	....	533	1.84	2.12
February,	4320	353	1350	4.66	4.85
March,	335	105	152	0.52	0.60
April,	1270	97	181	0.62	0.69
Mary,	1900	131	428	1.48	1.71
June,	131	50	77	0.27	0.30
July,	2320	83	467	1.61	1.86
August,	1510	83	391	1.35	1.56
September,	353	60	126	0.43	0.48
The year,	4320	35	347	1.20	15.96

Note.—Creek frozen December 15, 1914, to January 6, 1915, inclusive and discharge estimated from climatological data.

OHIO BASIN—STATION NO. 5.

TIONESTA CREEK AT BUTLER BRIDGE, PA.

DESCRIPTION OF STATION.

LOCATION—At three span, highway bridge, about two miles above Nebraska, Forest County.

RECORDS AVAILABLE—Discharge measurements and gage heights from July 26, 1912, to September 30, 1915.

DRAINAGE AREA—420 square miles.

GAGE—A sectional chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge and is read once daily by Mrs. P. S. Moore.

CHANNEL—Both banks are high, not subject to overflow, and the bed is composed of gravel and boulders.

DISCHARGE MEASUREMENT OF TIONESTA CREEK AT BUTLER BRIDGE, FOREST COUNTY, PA.

(Drainage area 420 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.ft.	
5	Sept. 28	Gough & Bronson, ...	384	3.95	273	0.6 method.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF TIONESTA CREEK AT BUTLER BRIDGE, FOREST COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	3.26	3.36	3.66	5.16	14.56	5.36	4.16	4.06	4.16	4.76	3.96	3.86
2,	3.16	3.26	4.56	5.06	15.46	5.06	4.16	4.06	4.16	4.96	3.96	3.86
3,	3.16	3.36	4.66	4.96	14.06	4.86	3.96	4.06	4.16	5.46	4.70	3.66
4,	3.06	3.36	4.26	4.76	12.66	4.56	3.96	4.16	4.06	5.06	5.76	3.66
5,	3.16	3.36	4.06	4.66	12.66	4.46	3.96	4.26	3.96	5.36	5.26	3.66
6,	3.16	3.36	3.96	4.66	12.56	4.46	3.86	4.26	3.86	5.16	4.66	3.56
7,	3.16	3.36	3.96	6.76	12.26	4.46	4.76	4.16	3.86	4.96	4.56	3.56
8,	3.16	3.46	3.96	11.56	11.56	4.36	4.66	4.66	3.86	6.16	4.36	3.66
9,	3.26	3.46	4.06	13.56	10.66	4.26	4.86	4.66	3.86	6.16	4.56	3.66
10,	3.26	3.56	3.96	12.06	10.56	4.26	5.06	4.36	3.76	5.36	4.46	3.66
11,	3.66	3.56	3.96	11.26	10.96	4.16	5.26	4.26	3.76	5.16	4.16	....
12,	3.46	3.56	3.86	11.16	11.96	4.06	5.66	4.26	3.76	5.36	4.06	3.86
13,	3.46	3.46	3.86	10.86	11.96	4.06	5.26	4.16	3.96	5.06	4.06	3.96
14,	3.46	3.46	*4.06	10.56	12.06	3.96	4.96	4.06	4.26	4.86	3.96	3.86
15,	3.46	3.86	3.86	10.06	7.96	4.06	4.66	4.06	4.66	4.56	3.96	3.66
16,	3.56	3.86	4.16	10.06	7.36	4.16	4.66	4.06	4.76	4.56	4.16	3.66
17,	3.56	4.06	4.16	10.26	6.46	4.16	4.56	4.56	4.26	5.86	4.06	3.30
18,	3.56	3.86	4.06	11.86	5.96	4.16	4.46	4.36	4.26	5.26	3.96	3.50
19,	3.56	3.56	4.06	13.56	5.66	4.06	4.36	4.16	4.26	4.86	3.86	4.90
20,	3.56	3.56	4.06	13.06	5.46	4.06	4.36	4.16	4.36	4.66	3.86	5.00
21,	3.46	3.56	4.46	12.56	5.16	4.06	4.26	5.16	4.06	4.96	3.96	3.80
22,	3.36	*3.56	4.46	10.86	5.16	4.06	4.16	6.36	4.06	4.66	4.66	3.70
23,	3.36	3.46	4.46	11.26	5.26	4.06	4.16	5.66	4.16	4.36	4.56	3.70
24,	3.36	3.46	4.46	10.36	7.96	4.16	4.16	5.26	4.06	4.26	4.36	3.60
25,	3.26	3.56	4.46	10.36	7.86	4.16	4.16	5.06	3.96	4.16	4.06	**
26,	3.26	3.66	4.36	9.56	6.86	4.16	4.06	4.66	3.86	4.16	3.96	....
27,	3.26	3.66	4.36	10.16	5.96	4.26	4.06	4.66	3.76	4.16	3.96	....
28,	3.26	3.46	4.36	10.16	5.56	4.26	4.16	4.56	3.76	3.96	3.96	......
29,	3.26	3.46	4.26	10.06	....	4.16	4.06	4.46	3.76	4.06	4.06	....
30,	3.26	3.56	4.56	8.36	....	4.16	4.06	4.36	4.46	4.06	4.06	....
31,	3.36	....	5.46	9.36	....	4.16	....	4.26	....	3.96	4.06	....

Notes.—*Creek frozen November 22 to 27, 1914, December 14, 1914, to February 14, 1915, with ice gorge January 8, 1915, to February 14, 1915. **Chain and weight stolen.

OHIO BASIN—STATION NO. 6.

OIL CREEK AT ROUSEVILLE, PA.

DESCRIPTION OF STATION.

LOCATION—At two span, steel, through-truss, highway bridge, one-half mile below Rouseville, Venango County, and 2½ miles above the mouth.

RECORDS AVAILABLE—Discharge complete from October 20, 1909, to September 30, 1915.

DRAINAGE AREA—330 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge and is read once daily by C. H. Wright.

CHANNEL—Right bank overflows in extreme floods, left bank is high and does not overflow and the bed is composed of gravel.

DISCHARGE MEASUREMENTS OF OIL CREEK AT ROUSEVILLE, VENANGO COUNTY, PA.

(Drainage area 330 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
			Sq. ft.	Feet.	Sec.ft.	
	1914.					
24	Dec. 10	Gough, ...	566	1.56	376	0.6 method.
	1915.					
25	Sept. 27	Gough & Bronson, ...	578	1.72	516	0.6 method.

DISCHARGE TABLE FOR OIL CREEK AT ROUSEVILLE, VENANGO COUNTY, PA., FROM OCTOBER 20, 1909.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
0.40	33	.60	420	.80	2000	4.00	4080	.20	6580
.50	45	.70	495	.90	2170	.10	4260	.30	6820
.60	60	.80	580	3.00	2340	.20	4450	.40	7080
.70	77	.90	675	.10	2510	.30	4640	.50	7360
.80	96	2.00	780	.20	2680	.40	4840	.60	7640
.90	118	.10	900	.30	2850	.50	5040	.70	7940
1.00	145	.20	1030	.40	3020	.60	5240	.80	8240
.10	175	.30	1170	.50	3195	.70	5460	.90	8540
.20	210	.40	1320	.60	3370	.80	5680	6.00	8840
.30	255	.50	1490	.70	3545	.90	5900		
.40	300	.60	1660	.80	3720	5.00	6120		
.50	355	.70	1830	.90	3900	.10	6340		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF OIL CREEK AT ROUSEVILLE, VENANGO COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.60	0.70	1.60	....	4.00	1.20	1.20	1.60	1.10	1.40	1.20	1.50
2,	0.60	0.70	2.60	....	4.70	1.60	1.20	1.50	1.10	1.30	1.40	1.40
3,	0.50	0.70	2.00	....	3.50	1.50	1.20	1.40	1.30	1.70	1.70	1.30
4,	0.50	0.70	1.70	....	2.60	1.40	1.20	1.30	1.30	2.00	3.10	1.30
5,	0.50	0.70	1.70	....	2.30	1.30	1.20	1.40	1.30	1.70	2.60	1.30
6,	0.50	0.60	1.20	....	3.00	1.40	1.30	1.30	1.10	1.70	2.00	1.30
7,	0.50	0.60	1.40	3.50	2.50	1.40	1.40	1.30	1.10	1.50	1.70	1.20
8,	0.60	0.70	1.70	3.30	2.20	1.30	1.40	3.20	1.20	3.00	1.70	1.20
9,	0.60	0.90	1.60	2.70	2.00	1.20	1.40	2.20	1.20	2.80	2.00	1.20
10,	0.70	0.90	1.61	2.50	1.70	1.30	1.40	1.90	1.10	2.00	2.10	1.20
11,	0.80	0.80	1.60	2.40	1.80	1.40	1.50	1.70	1.10	1.70	1.70	1.10
12,	0.70	0.80	1.50	1.60	2.40	1.30	1.70	1.50	1.00	2.20	1.60	1.00
13,	0.70	0.80	1.50	1.50	3.30	1.30	1.50	1.40	1.00	1.80	1.90	1.00
14,	0.80	0.70	1.30	1.40	3.10	1.30	1.40	1.40	1.00	1.50	1.60	1.00
15,	0.80	0.80	1.20	1.40	4.20	1.30	1.30	1.30	1.20	1.40	2.10	1.00
16,	0.90	1.00	*	1.30	3.50	1.30	1.30	1.30	1.50	1.50	2.10	1.00
17,	0.80	0.80	....	1.50	2.50	1.30	1.20	1.70	1.30	2.70	1.80	1.00
18,	0.80	0.80	....	2.40	2.10	1.20	1.20	1.60	1.10	2.00	1.50	1.00
19,	0.80	0.70	....	3.90	1.90	1.30	1.20	1.30	1.10	1.70	1.50	1.40
20,	0.80	0.70	....	2.90	1.80	1.30	1.20	1.20	1.00	1.50	1.40	1.20
21,	0.70	0.70	....	2.10	1.70	1.30	1.10	2.00	1.00	1.70	2.50	‖1.10
22,	0.70	0.80	....	2.00	1.80	1.30	1.10	3.00	0.90	1.70	3.60	1.00
23,	0.60	0.80	....	1.80	1.80	1.30	1.20	2.10	0.90	1.50	2.80	1.00
24,	0.60	0.70	....	1.50	2.50	1.30	1.20	2.00	0.90	1.40	2.20	1.00
25,	0.60	0.70	....	1.60	2.80	1.30	1.10	1.90	0.90	1.30	1.90	0.90
26,	0.50	0.80	....	1.50	2.20	1.50	1.00	1.70	0.80	1.20	1.70	1.30
27,	0.50	0.80	....	1.50	2.00	1.30	1.20	1.70	0.80	1.40	1.60	1.71
28,	0.50	0.90	....	1.40	1.70	1.30	2.00	1.30	0.80	1.30	1.50	1.30
29,	0.50	0.80	....	1.40	....	1.30	2.30	1.30	0.80	1.20	2.00	1.10
30,	0.70	0.90	....	1.40	....	1.20	1.70	1.30	1.20	1.30	2.00	1.10
31,	0.80	....	....	1.40	....	1.20	....	1.20	....	1.30	1.70	....

Notes.—*Creek frozen December 16, 1914, to January 6, 1915, inclusive. ‖Interpolated.

DAILY DISCHARGE, IN SECOND FEET, OF OIL CREEK AT ROUSEVILLE, VENANGO COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	60	77	420	102	4080	210	210	420	175	300	210	355
2,	60	77	1660	102	5460	420	210	355	175	255	300	300
3,	45	77	780	102	3200	355	210	300	255	495	495	255
4,	45	77	495	102	1660	300	210	255	255	780	2510	255
5,	45	77	495	102	1170	255	210	300	255	495	1660	255
6,	45	60	210	102	2340	300	255	255	175	495	780	255
7,	45	60	300	3200	1490	300	300	255	175	355	495	210
8,	60	77	495	2850	1030	255	300	2680	210	2340	495	210
9,	60	118	420	1830	780	210	300	1030	210	2000	780	210
10,	77	118	428	1490	495	255	300	675	175	780	900	210
11,	96	96	420	1320	580	300	355	495	175	495	495	175
12,	77	96	355	420	1320	255	495	355	145	1030	420	145
13,	77	96	355	355	2850	255	355	300	145	580	675	145
14,	96	77	255	300	2510	255	300	300	145	355	420	145
15,	96	96	210	300	4450	255	255	255	210	300	900	145
16,	118	145	*96	255	3200	255	255	255	355	355	900	145
17,	96	96	96	355	1490	255	210	495	255	1830	580	145
18,	96	96	96	1320	900	210	210	420	175	780	355	145
19,	96	77	96	3900	675	255	210	255	175	495	355	300
20,	96	77	96	2170	580	255	210	210	145	355	300	210
21,	77	77	96	900	495	255	175	780	145	495	1490	175
22,	77	96	96	780	580	255	175	2340	118	495	3370	145
23,	60	96	96	580	580	255	210	900	118	355	2000	145
24,	60	77	96	355	1490	255	210	780	118	300	1030	145
25,	60	77	96	420	2000	255	175	675	118	255	675	118
26,	45	96	96	355	1030	355	145	495	96	210	495	255
27,	45	96	96	355	780	255	210	495	96	300	420	504
28,	45	118	96	300	495	255	780	255	96	255	355	255
29,	45	96	96	300	....	255	1170	255	96	210	780	175
30,	77	118	96	300	....	210	495	255	210	255	780	175
31,	96	....	96	300	....	210	....	210	....	255	495	....

Note.—*Creek frozen December 16, 1914, to January 6, 1915, inclusive, and discharge estimated from Brokenstraw Creek at Youngsville.

ESTIMATED MONTHLY DISCHARGE OF OIL CREEK AT ROUSEVILLE, VENANGO COUNTY, PA.

(Drainage area 330 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	118	45	70	0.21	0.24
November,	145	60	91	0.28	0.31
December,	1660	....	285	0.86	0.99
1915.					
January,	3900	....	827	2.51	2.89
February,	5460	495	1700	5.15	5.36
March,	420	210	269	0.82	0.94
April,	1170	145	304	0.92	1.03
May,	2680	210	558	1.69	1.95
June,	355	96	173	0.52	0.58
July,	2340	210	589	1.78	2.05
August,	3370	210	836	2.53	2.92
September,	504	118	210	0.64	0.71
The year,	5460	45	493	1.49	19.97

Note.—Creek frozen December 16, 1914, to January 6, 1915, inclusive, and discharge estimated from Brokenstraw Creek at Youngsville.

OHIO BASIN—STATION NO. 7.

FRENCH CREEK AT KIMMEYTOWN, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge at Kimmeytown, Erie County, 5 miles above Leboeuf.

RECORDS AVAILABLE—Discharge complete from May 16, 1910, to September 30, 1915. For other records on this creek see French Creek at Carlton.

DRAINAGE AREA—190 square miles.

GAGE—A standard chain gage, whose elevation of zero is 1,235.7 feet above mean sea level, is located on the downstream side of the bridge and is read twice daily by Mrs. J. L. Carter.

CHANNEL—Both banks are subject to overflow at extreme stages; the bed is composed of gravel.

REMARKS—Data at this station previous to October 1, 1914, has been published under North Branch French Creek at Kimmeytown.

DISCHARGE MEASUREMENT OF FRENCH CREEK AT KIMMEYTOWN, ERIE COUNTY, PA.

(Drainage area 190 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec. ft.	
15	Sept. 29	Bronson & Gough, ...	244	2.17	382	0.6 method.

DISCHARGE TABLE FOR FRENCH CREEK AT KIMMEYTOWN, ERIE COUNTY, PA., FROM MAY 16, 1910.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
0.60	26	.10	414	.60	1120	.10	2060	.60	3320
.70	32	.20	450	.70	1180	.20	2140	.70	3420
.80	46	.30	490	.80	1240	.30	2220	.80	3520
.90	64	.40	530	.90	1300	.40	2300	.90	3630
1.00	86	.50	572	4.00	1360	.50	2380	7.00	3740
.10	108	.60	616	.10	1420	.60	2460	.10	3850
.20	132	.70	662	.20	1480	.70	2540	.20	3970
.30	160	.80	710	.30	1540	.80	2620	.30	4090
.40	188	.90	760	.40	1600	.90	2700	.40	4210
.50	216	3.00	810	.50	1660	6.00	2780	.50	4340
.60	246	.10	860	.60	1720	.10	2870	.60	4470
.70	276	.20	910	.70	1780	.20	2960	.70	4600
.80	310	.30	960	.80	1850	.30	3050		
.90	344	.40	1010	.90	1920	.40	3140		
2.00	378	.50	1060	5.00	1990	.50	3230		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF FRENCH CREEK AT KIMMEYTOWN, ERIE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.51	‖1.01	4.32	2.12	4.98	1.93	1.53	1.03	1.04	0.94	‖1.50	1.75
2,	0.51	0.91	5.02	2.22	5.63	1.83	1.43	‖1.03	1.04	0.94	1.25	1.55
3,	0.51	0.91	4.52	‖2.02	4.93	1.53	1.53	1.03	1.14	0.94	1.15	1.35
4,	‖0.51	0.91	3.22	1.82	4.33	1.43	1.83	1.03	1.24	‖0.94	‡7.20	1.35
5,	0.51	1.01	2.42	1.62	3.83	1.43	1.83	1.63	1.04	0.94	7.25	‖1.30
6,	0.51	1.11	‖2.32	1.82	3.43	1.43	2.03	1.43	‖0.94	0.84	3.75	1.25
7,	0.51	1.11	2.22	5.72	‖3.08	‖1.38	2.53	1.43	0.84	0.94	2.75	1.35
8,	0.51	‖1.31	2.32	5.82	2.73	1.33	2.43	3.43	0.94	2.44	‖2.55	1.65
9,	0.51	1.51	2.12	4.42	2.53	1.33	2.23	‖2.78	0.84	4.44	2.35	1.45
10,	0.71	1.61	2.02	‖3.72	2.43	1.33	2.03	2.13	0.84	2.94	1.35	1.25
11,	‖0.81	1.41	2.12	3.02	2.23	1.53	‖2.48	1.63	0.84	‖3.82	1.05	1.15
12,	0.91	1.41	2.02	2.52	3.43	1.33	2.93	1.43	0.84	†4.69	2.05	‖1.40
13,	0.81	1.61	‖1.82	2.02	4.63	1.23	2.63	1.33	‖0.84	5.04	1.65	1.65
14,	0.71	1.41	1.62	1.92	‖5.68	‖1.53	2.13	1.23	‖0.84	3.14	1.85	2.45
15,	0.81	‖1.41	1.32	1.72	6.73	1.83	1.73	1.13	0.84	2.14	‖1.80	2.05
16,	0.81	1.41	1.72	1.62	5.83	2.03	1.53	‖1.23	1.24	1.94	1.75	2.35
17,	0.81	2.11	1.22	‖2.12	4.03	1.83	1.53	1.33	1.14	2.34	1.55	3.25
18,	‖1.36	1.91	1.62	2.62	2.93	1.63	‖1.48	1.33	1.04	‖2.04	1.35	2.35
19,	1.91	1.91	1.62	3.62	2.33	1.43	1.43	1.33	0.84	1.74	1.35	‖2.30
20,	1.81	1.81	‖1.72	2.62	2.23	1.43	1.33	1.23	‖0.89	1.54	1.35	2.25
21,	1.71	1.91	1.82	2.52	‖2.48	‖1.43	1.33	1.33	0.94	1.74	1.15	1.75
22,	1.11	‖1.81	1.72	2.02	2.73	1.43	1.23	3.83	0.94	1.44	3.75	1.55
23,	0.91	1.71	1.62	1.92	2.93	1.43	1.13	‖2.98	1.14	1.54	4.25	1.45
24,	0.91	1.71	1.52	‖1.77	4.43	1.63	1.23	2.03	1.14	1.44	3.05	1.35
25,	‖0.81	1.81	1.52	1.62	4.83	1.83	‖1.13	2.03	0.94	‖1.29	2.95	1.25
26,	0.71	1.81	1.32	1.62	3.23	2.23	1.03	1.93	0.94	1.14	3.25	‖2.75
27,	0.81	4.51	‖1.27	1.82	2.43	1.83	1.03	1.43	‖0.89	1.04	2.95	4.25
28,	0.81	4.21	1.22	1.72	‖2.18	‖1.78	1.03	1.43	0.84	1.04	2.75	3.15
29,	0.91	‖3.46	1.22	1.72	....	1.73	1.13	1.23	0.74	1.24	2.45	2.21
30,	0.91	2.71	1.82	1.52	....	1.43	1.03	‖1.13	0.94	2.34	2.45	1.65
31,	1.11	....	1.82	††1.72	....	1.53	....	1.03	....	1.74	2.05	....

Notes.—‖Interpolated. ††Estimated. †Maximum 5.54 ft. at 6:15 P. M. ‡Maximum 8.45 ft. at 1 P. M.

DAILY DISCHARGE, IN SECOND-FEET, OF FRENCH CREEK AT KIMMEYTOWN, ERIE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	22	88	1550	421	1980	354	225	93	95	73	216	298
2,	22	66	2000	458	2480	320	196	93	95	73	146	231
3,	22	66	1670	385	1940	225	225	93	118	73	120	174
4,	22	66	920	317	1560	196	320	93	143	73	‡3970	174
5,	22	88	538	252	1260	196	320	255	95	73	4080	160
6,	22	110	498	317	1020	196	389	196	73	53	1210	146
7,	22	110	458	2560	850	182	585	196	53	73	686	174
8,	22	163	498	2640	676	168	543	1020	73	547	594	261
9,	22	219	421	1610	585	168	462	700	53	1620	510	202
10,	33	249	385	1190	543	168	389	425	53	780	174	146
11,	48	191	421	820	462	225	564	255	53	1250	97	120
12,	66	191	385	581	1020	168	775	196	53	†1770	396	188
13,	48	249	317	385	1740	140	630	168	53	2020	261	261
14,	33	191	252	351	2520	225	425	140	53	880	327	551
15,	48	191	166	283	3450	320	286	115	53	428	310	396
16,	48	191	283	252	2640	389	225	140	143	358	298	510
17,	48	418	138	421	1380	320	225	168	118	506	231	985
18,	177	347	252	625	775	255	210	168	95	392	174	510
19,	347	347	252	1130	502	196	196	168	53	290	174	490
20,	313	313	283	625	462	196	168	140	62	228	174	470
21,	279	347	317	581	564	196	168	168	73	290	120	298
22,	110	313	283	385	676	196	140	1260	73	199	1210	231
23,	66	279	252	351	775	196	115	775	118	228	1510	202
24,	66	279	222	300	1620	255	140	389	118	199	885	174
25,	48	313	222	252	1870	320	115	389	73	157	785	146
26,	33	313	166	252	925	462	93	354	73	118	985	686
27,	48	1670	152	317	543	320	93	196	62	95	785	1510
28,	48	1490	138	283	443	303	93	196	53	95	686	885
29,	66	1040	138	283	....	286	115	140	88	143	551	454
30,	66	667	317	222	....	196	93	115	73	506	551	261
31,	110	....	317	283	....	225	....	93	....	290	396	....

Notes.—†Maximum=2410 sec.-ft. ‡Maximum=5680 sec.-ft.

ESTIMATED MONTHLY DISCHARGE OF FRENCH CREEK AT KIMMEYTOWN, ERIE COUNTY, PA.

(Drainage area 190 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	347	22	76	0.40	0.46
November,	1670	66	352	1.85	2.06
December,	2000	138	458	2.41	2.78
1915.					
January,	2640	222	617	3.25	3.75
February,	3450	443	1260	6.63	6.90
March,	462	140	244	1.28	1.48
April,	775	93	284	1.49	1.66
May,	1260	93	287	1.51	1.74
June,	143	38	78	0.41	0.46
July,	2410	53	448	2.36	2.72
August,	5680	97	724	3.81	4.39
September,	1510	120	374	1.97	2.20
The year,	5680	22	434	2.28	30.60

OHIO BASIN—STATION NO. 8.

CUSSEWAGO CREEK NEAR MEADVILLE, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge, near Jones' Farm, 4½ miles above Meadville, Crawford County.

RECORDS AVAILABLE—Discharge complete May 3, 1910, to September 30, 1915.

DRAINAGE AREA—88 square miles.

GAGE—A sectional chain gage, whose elevation of zero is 1,071.77 feet above mean sea level, is located on the downstream side of the bridge, and is read twice daily by J. E. Hofius.

CHANNEL—Both banks are subject to overflow at gage height of approximately 8 feet, and the bed is soft and subject to change.

DISCHARGE MEASUREMENTS OF CUSSEWAGO CREEK NEAR MEADVILLE, CRAWFORD COUNTY, PA.

(Drainage area 88 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec. ft.	
14	Aug. 6	Ferris,	584	9.54	814	Multiple point method. 117 sec.-ft. overflow.
15	Aug. 9	McElrath,	179	4.75	184	Multiple point method.
16	Aug. 10	McElrath,	130	3.99	132	Multiple point method.

DISCHARGE TABLE FOR CUSSEWAGO CREEK NEAR MEADVILLE, CRAWFORD COUNTY, PA., FROM MAY 3, 1910, TO DECEMBER 31, 1911

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
0.50	2	.60	48	.70	166	.80	335	.90	686
.60	3	.70	53	.80	172	.90	346	9.00	709
.70	4	.80	58	.90	179	7.00	357	.10	732
.80	5	.90	63	5.00	186	.10	368	.20	756
.90	6	3.00	68	.10	193	.20	380	.30	780
1.00	7	.10	73	.20	200	.30	392	.40	806
.10	8	.20	78	.30	207	.40	405	.50	833
.20	9	.30	83	.40	214	.50	419	.60	861
.30	10	.40	88	.50	221	.60	434	.70	890
.40	12	.50	94	.60	228	.70	450	.80	920
.50	14	.60	100	.70	236	.80	466	.90	950
.60	16	.70	106	.80	244	.90	483	10.00	980
.70	18	.80	112	.90	252	8.00	501	.10	1010
.80	20	.90	118	6.00	260	.10	519	.20	1040
.90	23	4.00	124	.10	268	.20	538	.30	1070
2.00	26	.10	130	.20	276	.30	558	.40	1100
.10	29	.20	136	.30	285	.40	578	.50	1130
.20	32	.30	142	.40	294	.50	599		
.30	35	.40	148	.50	304	.60	620		
.40	39	.50	154	.60	314	.70	641		
.50	43	.60	160	.70	324	.80	663		

DISCHARGE TABLE FOR CUSSEWAGO CREEK NEAR MEADVILLE, CRAWFORD COUNTY, PA., FROM JANUARY 1, 1912

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
0.20	0.5	.30	39	.40	157	.50	313	.60	620
.30	1	.40	43	.50	164	.60	322	.70	641
.40	1.5	.50	47	.60	171	.70	332	.80	
.50	2	.60	52	.70	178	.80	342	.90	686
.60	3	.70	57	.80	185	.90	353	9.00	709
.70	4	.80	62	.90	192	7.00	364	.10	732
.80	5	.90	67	5.00	199	.10	375	.20	756
.90	6	3.00	72	.10	206	.20	386	.30	780
1.00	7	.10	78	.20	213	.30	398	.40	806
.10	8	.20	84	.30	220	.40	411	.50	833
.20	10	.30	90	.40	227	.50	425	.60	861
.30	12	.40	96	.50	234	.60	439	.70	890
.40	14	.50	102	.60	241	.70	453	.80	920
.50	16	.60	108	.70	248	.80	468	.90	950
.60	18	.70	114	.80	256	.90	484	10.00	980
.70	20	.80	120	.90	264	8.00	501	.10	1010
.80	22	.90	126	6.00	272	.10	519	.20	1040
.90	25	4.00	132	.10	280	.20	538	.30	1070
2.00	28	.10	138	.20	288	.30	558	.40	1100
.10	31	.20	144	.30	296	.40	578	.50	1130
.20	35	.30	150	.40	304	.50	599		

Note.—This table is only applicable subsequent to Jan. 1, 1912, and is based on 6 discharge measurements made during 1912-14-15, together with former curve.

NOTE—Due to change in discharge table the daily discharge at this station from January 1, 1912, to September 30, 1914, has been revised. The figure for the drainage area has been changed and the estimated monthly discharge from 1910 to 1914, inclusive, has been revised.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF CUSSEWAGO CREEK NEAR MEADVILLE, CRAWFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1912.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	7.77	5.26	7.35	7.53	....	....	9.08	6.17	1.96	0.66	0.85	1.80
2,	8.57	5.46	6.05	7.93	....	....	9.18	3.77	1.56	0.66	0.80	1.60
3,	8.47	4.91	3.95	7.63	....	....	9.48	2.92	4.36	0.61	0.95	2.60
4,	8.77	4.46	3.75	4.23	....	....	8.98	2.37	4.56	0.66	0.85	3.00
5,	6.97	4.26	3.45	3.43	....	....	8.58	2.07	2.46	0.56	0.85	2.30
6,	3.97	3.96	3.45	*	....	....	8.38	2.17	1.96	0.56	0.80	1.90
7,	5.97	5.36	3.45	....	....	....	8.38	[illegible]	1.86	0.66	0.75	2.10
8,	6.67	6.96	3.30	....	....	....	8.28	[illegible]	1.26	0.56	0.75	1.85
9,	5.67	7.06	5.75	....	....	....	8.68	[illegible]	1.26	0.66	0.80	1.40
10,	3.47	5.66	6.00	....	....	....	7.58	[illegible]	1.06	0.66	0.95	1.20
11,	3.07	4.96	5.75	....	....	....	4.28	2.02	1.06	0.66	1.30	1.10
12,	3.07	5.56	5.65	....	....	....	3.58	2.27	1.06	0.66	2.35	1.10
13,	2.97	6.96	8.00	....	....	....	3.33	2.82	1.11	0.66	1.65	1.00
14	2.77	7.66	8.75	....	....	....	3.58	2.97	1.06	0.76	1.35	0.95
15,	2.57	5.46	9.25	....	....	....	6.38	4.17	0.86	0.66	1.05	0.90
16,	2.47	5.46	8.65	....	....	....	7.68	3.87	1.26	0.66	0.90	0.90
17,	2.27	5.36	8.30	....	....	....	8.38	5.17	2.11	0.66	0.80	0.85
18,	7.57	7.96	7.05	....	....	....	5.48	5.87	1.86	0.71	0.80	1.00
19,	10.17	10.16	4.75	....	....	....	4.63	4.07	1.66	0.66	0.75	0.95
20,	9.37	9.36	3.85	....	....	10.20	4.08	2.97	1.26	0.66	0.75	1.20
21,	‖6.77	8.36	3.35	....	....	9.80	3.28	2.87	1.16	0.61	0.95	1.10
22,	4.17	6.36	3.45	....	....	9.30	2.88	2.17	1.16	0.76	1.20	1.00
23,	3.87	4.96	6.35	....	....	8.40	3.18	1.97	1.16	0.61	1.05	1.60
24,	3.77	6.06	7.15	....	....	7.90	3.03	1.77	0.96	0.71	0.95	4.40
25,	3.57	6.36	6.35	....	....	8.10	2.58	1.57	0.76	0.80	1.15	5.00
26,	3.27	7.16	4.55	....	....	8.25	2.33	1.47	0.76	0.80	1.25	3.50
27,	2.87	5.91	5.15	....	....	7.50	2.18	1.27	0.86	0.90	5.20	2.50
28,	2.77	6.16	5.35	....	....	6.90	2.08	1.27	0.86	0.80	5.85	2.20
29,	3.17	7.06	4.25	....	....	8.20	3.68	1.92	0.81	0.80	4.10	1.80
30,	2.97	7.76	4.35	....	....	10.50	6.38	3.17	0.76	0.70	2.75	1.50
31,	2.92	....	4.95	....	....	9.40	....	2.57	....	0.80	2.30	....

Notes.—*Creek frozen January 6 to March 19, 1912, inclusive. ‖Interpolated.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF CUSSEWAGO CREEK NEAR MEADVILLE, CRAWFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1913.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.45	2.88	2.58	7.50	3.05	6.50	5.30	3.30	1.70	1.00	0.70	0.70
2,	1.55	3.28	3.18	7.90	3.15	4.60	4.10	2.40	2.30	0.90	0.70	0.65
3,	1.55	4.18	6.18	8.15	3.35	4.20	3.80	2.00	3.90	0.85	0.60	0.60
4,	1.55	4.68	6.98	7.70	2.85	3.40	4.00	1.80	3.30	0.80	0.60	0.60
5,	1.50	4.48	5.28	6.60	2.90	3.10	4.40	1.70	3.00	2.70	0.55	0.60
6,	1.35	3.98	5.38	6.15	2.70	3.20	4.20	1.65	2.60	5.80	0.55	0.60
7,	1.35	3.78	6.98	9.80	2.65	2.85	3.10	1.60	1.50	5.50	0.50	0.55
8,	1.55	5.78	6.18	10.65	2.20	2.80	2.80	1.30	3.25	3.50	0.50	0.50
9,	1.25	6.08	4.43	10.00	2.40	2.70	2.80	1.30	2.30	2.10	0.60	0.50
10,	1.25	6.18	4.08	8.95	2.40	6.50	2.60	1.30	1.50	2.50	0.60	0.50
11,	1.65	6.68	3.20	8.45	2.40	8.10	2.70	1.15	1.50	2.70	0.60	0.45
12,	1.55	5.58	3.20	8.90	2.50	9.30	4.80	1.10	1.20	1.85	0.70	0.45
13,	1.85	5.28	2.95	9.55	2.50	9.00	4.10	1.10	1.00	1.60	0.70	0.45
14,	1.55	3.38	2.60	9.00	2.05	8.20	3.10	1.05	1.00	1.50	0.70	0.50
15,	‖1.47	3.58	2.30	7.15	2.00	8.10	3.10	1.10	1.00	1.50	0.70	0.50
16,	1.39	3.18	2.60	5.05	2.10	5.90	2.60	1.30	1.00	1.30	0.60	0.50
17,	1.14	4.18	3.45	8.00	2.40	4.20	2.50	1.70	0.90	1.20	0.55	0.50
18,	1.34	4.08	4.05	9.45	2.50	3.70	2.30	1.70	0.80	1.10	0.55	0.60
19,	2.94	3.58	4.30	11.00	2.30	3.65	2.10	1.40	0.80	1.10	0.60	2.30
20,	5.14	3.18	4.00	9.35	2.80	3.50	1.90	1.30	0.90	1.00	0.55	2.10
21,	4.64	2.98	3.60	8.20	5.30	3.10	1.80	1.10	1.00	0.95	0.50	1.30
22,	3.04	2.88	2.80	8.50	6.80	2.70	1.80	1.10	1.05	0.90	0.60	1.10
23,	6.64	2.68	3.25	8.45	7.40	2.60	1.70	1.20	1.00	0.70	0.85	1.20
24,	10.64	2.58	2.40	8.40	7.00	8.10	1.60	1.30	1.05	0.80	1.90	1.10
25,	9.84	2.58	2.30	9.05	4.40	††16.00	1.60	1.30	1.30	0.70	1.70	1.00
26,	9.44	2.58	2.50	8.35	3.20	††13.50	1.60	1.20	1.25	0.80	1.20	0.90
27,	9.34	2.58	2.30	5.60	3.80	††13.00	1.80	1.20	2.00	0.70	1.10	0.80
28,	7.14	2.68	2.40	4.05	4.90	10.00	3.00	2.00	1.80	0.80	0.90	0.70
29,	6.54	2.58	2.55	3.40	....	9.15	4.60	5.00	1.30	1.00	0.80	0.70
30,	3.19	2.58	2.50	2.70	....	8.50	5.10	3.30	1.00	0.70	0.70	0.70
31,	3.39	....	6.23	3.20	....	7.10	....	2.80	....	0.80	0.70	....

Notes.—‖Interpolated. ††Estimated.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF CUSSEWAGO CREEK NEAR MEADVILLE, CRAWFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.70	4.40	2.60	2.90	8.80	....	7.20	8.10	1.55	0.78	0.48	1.48
2,	0.70	4.90	2.60	2.70	8.10	....	6.40	2.80	1.30	0.78	0.38	2.13
3,	1.10	3.80	2.65	2.50	6.60	....	7.90	2.50	1.20	0.68	0.38	2.68
4,	††2.50	3.20	2.60	3.10	5.00	....	9.00	2.25	1.25	0.63	0.38	2.28
5,	3.25	2.90	2.50	3.00	4.70	....	8.40	3.85	1.70	0.58	0.38	‖1.68
6,	2.20	2.70	2.40	2.40	3.80	....	6.25	9.15	2.40	0.78	0.38	1.13
7,	1.60	2.60	2.20	**	4.70	....	5.30	9.50	1.90	0.68	0.38	0.98
8,	1.30	2.90	4.10	....	4.40	....	7.50	8.70	1.60	0.68	0.38	0.88
9,	1.10	3.20	4.00	....	4.70	....	8.35	‖6.98	1.30	0.58	0.38	0.83
10,	1.00	4.00	3.80	....	3.95	....	8.70	5.25	1.05	0.58	0.38	0.78
11,	1.00	6.40	3.75	....	3.35	....	8.10	4.00	1.10	0.58	0.58	0.68
12,	1.05	7.60	3.20	....	2.90	....	7.25	8.60	1.10	0.53	0.63	0.68
13,	1.20	7.00	3.40	....	2.65	....	7.70	10.80	0.90	0.58	0.73	0.63
14,	1.15	11.00	3.75	....	2.60	....	6.85	9.65	0.85	0.98	0.68	0.58
15,	1.25	10.20	4.45	....	*	....	3.95	8.85	0.70	1.23	0.58	0.58
16,	1.40	9.60	4.00	*	....	....	5.00	7.20	0.80	1.08	0.48	0.58
17,	1.20	8.85	3.50	....	....	....	6.50	3.70	0.75	0.88	0.58	0.58
18,	1.00	7.45	3.25	....	....	....	5.40	3.10	0.70	0.83	0.48	0.48
19,	1.10	5.30	3.10	....	....	....	4.10	2.70	0.70	0.78	0.43	0.48
20,	1.20	5.50	2.90	....	....	7.75	3.40	2.35	0.70	0.68	0.48	0.48
21,	1.70	5.60	2.60	....	....	‖5.82	3.20	2.25	0.80	0.68	0.48	0.48
22,	2.60	5.20	2.60	....	....	3.90	3.05	2.10	1.20	0.63	0.48	0.48
23,	3.60	4.05	2.70	....	....	3.60	2.90	2.00	2.00	0.58	0.58	0.43
24,	4.50	3.50	††3.00	....	....	3.55	2.70	1.90	1.45	0.53	0.78	0.48
25,	6.25	3.05	4.95	....	....	4.00	3.20	1.70	1.05	0.53	0.68	0.48
26,	7.40	2.80	4.65	....	....	6.40	6.10	1.70	0.95	0.58	0.68	0.53
27,	7.90	2.70	3.35	....	....	7.40	7.40	1.50	0.85	0.53	0.63	0.58
28,	7.20	2.60	4.05	....	....	10.10	7.60	1.55	0.80	0.53	0.58	0.58
29,	4.10	2.70	3.30	....	....	9.60	4.50	1.70	0.80	0.48	0.63	0.58
30,	3.90	2.65	2.95	....	....	8.90	3.35	1.40	0.70	0.48	0.68	0.58
31,	3.85	....	2.80	9.45	....	8.10	....	1.55	....	0.48	1.08	....

Notes.—*Creek frozen January 16 to 30, and February 15 to March 19, 1914, inclusive. ††Estimated. **Chain broken. ‖Interpolated.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF CUSSEWAGO CREEK NEAR MEADVILLE, CRAWFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.55	2.20	5.65	....	7.25	3.00	2.30	1.80	1.50	0.75	1.10	2.26
2,	0.55	1.90	7.60	....	11.05	2.80	2.30	1.75	1.40	0.80	1.10	‖1.96
3,	0.50	1.60	8.00	....	10.20	2.60	2.25	1.75	1.50	0.80	1.05	1.66
4,	0.50	1.55	7.75	....	*	2.50	2.20	1.65	1.75	0.80	3.15	1.41
5,	0.50	1.50	5.40	....	....	2.40	2.40	1.80	1.65	1.40	†10.80	1.36
6,	0.50	1.50	3.50	....	....	2.30	2.75	2.50	1.45	1.35	9.67	1.31
7,	0.50	1.55	3.25	**7.90	....	2.20	2.90	2.55	1.25	1.40	9.10	1.36
8,	0.50	1.60	4.60	**10.10	....	2.00	3.00	3.80	1.20	1.80	6.40	1.41
9,	0.45	2.30	6.30	**9.50	....	2.15	2.70	6.80	1.25	4.10	4.95	1.36
10,	0.50	4.20	5.10	**9.00	....	2.40	2.75	6.85	1.25	4.50	4.04	1.31
11,	0.65	3.40	5.80	**7.00	....	2.90	2.80	3.80	1.20	2.60	3.20	1.21
12,	0.70	2.80	5.50	4.05	6.60	2.80	4.00	3.00	1.10	2.10	2.95	1.16
13,	0.80	2.40	3.90	3.40	8.30	2.50	4.20	2.20	1.05	2.65	4.40	1.11
14,	0.85	2.00	3.60	3.10	9.70	2.35	3.30	1.95	1.00	2.55	5.40	1.11
15,	1.05	1.95	*	3.05	9.65	2.50	2.55	1.70	1.00	1.90	5.40	1.06
16,	1.10	2.60	....	3.00	9.50	2.80	2.20	‖1.98	1.50	1.70	5.35	2.66
17,	1.40	4.20	....	2.90	9.00	2.85	2.10	2.25	1.50	4.50	4.05	3.11
18,	1.80	3.95	....	4.60	7.75	2.45	2.00	2.70	1.30	4.15	2.90	3.01
19,	1.95	3.90	....	6.60	††5.80	2.15	1.90	2.40	1.20	3.05	2.40	4.06
20,	3.00	3.80	....	7.00	4.00	2.00	1.80	2.00	1.15	2.00	2.10	3.76
21,	2.40	3.50	....	5.90	3.60	1.90	1.70	1.95	1.20	1.70	1.90	2.71
22,	1.80	3.30	....	4.60	3.10	1.85	1.65	5.00	1.20	4.90	2.05	2.11
23,	1.50	3.15	....	4.00	3.30	1.90	1.55	6.85	1.00	3.00	2.60	1.71
24,	1.40	3.10	....	3.60	4.10	2.15	1.50	4.90	1.00	2.00	2.75	1.56
25,	1.10	3.30	....	3.80	5.40	2.70	1.55	3.40	0.90	1.50	2.30	1.41
26,	1.05	3.50	....	3.60	4.80	3.30	1.45	3.10	0.85	1.30	1.95	1.31
27,	1.00	5.25	....	3.50	3.40	3.10	1.40	2.55	0.80	1.50	1.80	2.71
28,	1.05	‖5.28	....	3.40	3.30	2.90	1.45	2.20	0.75	1.20	1.70	4.71
29,	‖1.32	5.30	....	*	....	2.60	1.70	2.00	0.70	1.15	1.80	3.61
30,	‖1.58	3.45	....	....	....	2.20	2.60	1.80	0.70	1.20	2.10	2.31
31,	1.85	....	....	2.80	....	2.25	....	1.70	....	1.15	2.75	....

Notes.—*Creek frozen December 15, 1914, to January 6, 1915; January 29 and 30, 1915, and February 4 to 11, 1915, inclusive. ‖Interpolated. **Back water. ††Estimated. †Maximum 12.50 ft. at 2 A. M. from hydrograph.

DAILY DISCHARGE, IN SECOND-FEET, OF CUSSEWAGO CREEK NEAR MEADVILLE, CRAWFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1912.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	461	204	398	429	135	110	727	286	27	4	6	22
2,	614	218	264	489	135	110	751	118	17	4	5	18
3,	593	180	121	443	135	110	828	68	154	3	6	52
4,	656	152	109	146	135	110	704	42	168	4	6	72
5,	354	140	91	98	135	110	616	30	45	3	6	39
6,	122	122	91	*125	135	110	574	34	27	3	5	25
7,	258	211	91	125	135	110	574	204	24	4	4	31
8,	321	353	83	125	135	110	554	112	11	3	4	23
9,	234	364	240	125	135	110	637	56	11	4	5	14
10,	92	233	260	125	135	110	436	38	8	4	6	10
11,	72	183	240	125	135	110	149	29	8	4	12	8
12,	72	225	232	125	135	110	107	38	8	4	41	8
13,	66	353	501	125	135	110	92	63	8	4	19	7
14,	56	444	652	125	135	110	107	70	8	5	13	6
15,	46	218	768	125	135	110	302	142	6	4	8	6
16,	42	218	630	125	135	980	450	124	11	4	6	6
17,	34	211	558	125	135	980	574	211	31	4	5	6
18,	430	494	362	125	135	980	233	262	24	4	5	7
19,	1030	1030	169	125	125	980	173	136	19	4	4	6
20,	798	796	115	125	135	1040	137	70	11	4	4	10
21,	332	570	86	125	135	920	89	42	9	3	6	8
22,	134	290	91	125	135	780	66	34	9	5	10	7
23,	116	183	290	125	135	578	83	27	9	3	8	18
24,	110	265	374	125	135	484	74	21	7	4	6	157
25,	98	290	290	125	135	519	51	17	5	5	9	199
26,	82	375	157	125	135	548	40	15	5	5	11	102
27,	62	253	196	125	135	425	34	11	6	6	213	47
28,	56	273	210	125	135	353	29	11	6	5	260	35
29,	76	364	139	125	135	538	113	26	5	5	138	22
30,	66	460	145	125	....	1130	302	82	5	4	60	16
31,	64	....	182	125	....	806	....	50	....	5	39	....

Note.—*Creek frozen January 6 to March 19, 1912, inclusive, and discharge estimated from Brokenstraw Creek at Youngsville.

DAILY DISCHARGE, IN SECOND-FEET, OF CUSSEWAGO CREEK NEAR MEADVILLE, CRAWFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1913.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	15	66	51	425	75	313	220	90	20	7	4	4
2,	17	89	83	484	81	171	138	43	39	6	4	4
3,	17	143	286	528	93	144	120	28	126	6	3	3
4,	17	177	362	453	64	96	132	22	90	5	3	3
5,	16	163	219	322	67	78	157	20	72	57	2	3
6,	13	131	226	284	57	84	144	19	52	256	2	3
7,	13	119	362	920	54	64	78	18	16	234	2	2
8,	17	254	286	1170	35	62	62	12	87	102	2	2
9,	11	278	159	980	43	57	62	12	39	31	3	2
10,	11	286	137	698	43	313	52	12	16	47	3	2
11,	19	330	84	588	43	519	57	9	16	57	3	2
12,	17	240	84	686	47	780	185	8	10	24	4	2
13,	24	219	70	847	47	709	138	8	7	18	4	2
14,	17	95	52	709	30	538	78	8	7	16	4	2
15,	15	107	39	380	28	519	78	8	7	16	4	2
16,	14	83	52	202	31	264	52	12	7	12	3	2
17,	9	143	99	501	43	144	47	20	6	10	2	2
18,	13	137	135	820	47	114	39	20	5	8	2	3
19,	69	107	150	1270	39	111	31	14	5	8	3	39
20,	209	83	132	793	62	102	25	12	6	7	2	31
21,	174	71	108	538	220	78	22	8	7	6	2	12
22,	74	66	62	599	342	57	22	8	8	6	3	8
23,	326	56	87	588	411	52	20	10	7	4	6	10
24,	1170	51	43	578	364	519	18	12	8	5	25	8
25,	932	51	39	720	157	2740	18	12	12	4	20	7
26,	817	51	47	568	84	2010	18	10	11	5	10	6
27,	790	51	39	241	120	1860	22	10	28	4	8	5
28,	379	56	43	135	192	980	72	28	22	5	6	4
29,	317	51	50	96	....	744	171	199	12	7	5	4
30,	83	51	47	57	....	599	206	90	7	4	4	4
31,	95	....	290	84	....	375	....	62	....	5	4	....

Note.—Discharges above 1130 sec.-ft. are estimated.

DAILY DISCHARGE, IN SECOND-FEET, OF CUSSEWAGO CREEK NEAR MEADVILLE, CRAWFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	4	157	52	67	663	40	386	78	17	5	2	16
2,	4	192	52	57	519	40	304	62	12	5	2	32
3,	8	120	54	47	322	40	484	47	10	4	2	56
4,	47	84	52	78	199	40	709	37	11	3	2	36
5,	87	67	47	72	178	40	578	123	20	3	2	20
6,	35	57	43	43	120	60	292	744	43	5	2	9
7,	18	52	35	††160	178	60	220	833	25	4	2	7
8,	12	67	138	††160	157	60	425	641	18	4	2	6
9,	8	84	132	††160	178	60	568	362	12	3	2	5
10,	7	132	120	††160	129	60	641	216	8	3	2	5
11,	7	304	117	††160	93	55	519	132	8	3	3	4
12,	8	439	84	††160	67	55	392	620	8	2	3	4
13,	10	364	96	††160	54	55	453	1220	6	3	4	3
14,	9	1280	117	††160	52	55	300	876	6	7	4	3
15,	11	1040	160	††160	*35	55	129	674	4	11	3	3
16,	14	861	132	*80	35	350	199	386	5	8	2	3
17,	10	674	102	80	35	350	313	114	4	6	2	2
18,	7	418	87	80	35	350	227	78	4	5	2	2
19,	8	220	78	80	35	350	138	57	4	5	2	2
20,	10	234	67	80	35	460	96	41	4	4	2	2
21,	20	241	52	80	35	258	84	37	5	4	2	2
22,	52	213	52	80	35	126	75	31	10	3	2	2
23,	108	135	57	80	35	108	67	28	28	3	2	2
24,	164	102	72	80	30	105	57	25	15	2	5	2
25,	292	75	196	80	30	132	84	20	8	2	4	2
26,	411	62	174	80	30	304	280	20	6	3	4	2
27,	484	57	93	80	30	411	411	16	6	2	3	3
28,	386	52	135	150	30	1010	439	17	5	2	3	3
29,	138	57	90	200	....	861	164	20	5	2	3	3
30,	126	54	70	400	....	686	93	14	4	2	4	3
31,	123	....	62	820	....	519	....	17	....	2	7	....

Notes.—*Creek frozen January 16 to 30, 1914, and February 15 to March 19, 1914, inclusive, and discharge estimated from climatological records. ††Estimated. Discharges above 1130 sec.-ft. are estimated.

DAILY DISCHARGE, IN SECOND-FEET, OF CUSSEWAGO CREEK NEAR MEADVILLE, CRAWFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	2	35	244	28	892	72	39	22	16	4	8	37
2,	2	25	439	28	1290	62	39	21	14	5	8	27
3,	2	18	501	28	1040	52	37	21	16	5	8	19
4,	2	17	460	28	*321	47	35	19	21	5	528	14
5,	2	16	227	28	321	43	43	22	19	14	†1210	13
6,	2	16	102	28	321	39	60	47	15	13	881	12
7,	2	17	87	††125	321	35	67	50	11	14	732	13
8,	2	18	171	††125	137	28	72	120	10	22	304	14
9,	2	39	296	††125	137	33	57	342	11	138	196	13
10,	2	144	206	††125	137	43	60	348	11	164	134	12
11,	4	96	256	††125	137	67	62	120	10	52	84	10
12,	4	62	234	135	322	62	132	72	8	31	70	9
13,	5	43	126	96	558	47	144	35	8	54	157	8
14,	6	28	108	78	890	41	90	26	7	50	227	8
15,	8	26	*26	75	876	47	50	20	7	25	227	8
16,	8	52	26	72	833	62	35	27	16	20	224	55
17,	14	144	26	67	709	64	31	37	16	164	135	79
18,	22	129	26	171	460	45	28	57	12	141	67	73
19,	26	126	26	322	256	33	25	43	10	75	43	136
20,	72	120	26	364	132	28	22	28	9	28	31	118
21,	43	102	26	264	108	25	20	26	10	20	25	58
22,	22	90	26	171	78	24	19	199	10	192	30	81
23,	16	81	26	132	90	25	17	348	7	72	52	20
24,	14	78	26	108	138	33	16	192	7	28	60	17
25,	8	90	26	120	227	57	17	96	6	16	39	14
26,	8	102	26	108	185	90	15	78	6	12	26	12
27,	7	216	26	102	96	78	14	50	5	16	22	58
28,	8	219	26	96	90	67	15	35	4	10	20	179
29,	12	220	26	*46	....	52	20	28	4	9	22	109
30,	18	99	26	46	....	35	53	22	4	10	31	39
31,	24	....	28	62	....	87	....	20	....	9	60	....

Notes.—*Creek frozen December 15, 1914, to January 6, 1915; January 29 and 30, 1915, and February 4 to 11, 1915, inclusive, and discharge estimated from Brokenstraw Creek at Youngsville. ††Estimated. †Maximum=1700 sec.-ft. Discharges above 1130 sec.-ft. are estimated.

ESTIMATED MONTHLY DISCHARGE OF CUSSEWAGO CREEK NEAR MEADVILLE, CRAWFORD COUNTY, PA.

(Drainage area 88 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1910.					
May,	793	34	....	....	....
June,	519	5	82	0.93	1.04
July,	25	3	6	0.07	0.08
August,	10	2	4	0.04	0.05
September,	20	2	6	0.07	0.08
1910.					
October,	309	3	56	0.64	0.74
November,	920	112	441	5.01	5.59
December,	1070	127	276	3.14	3.62
1911.					
January,	1120	46	523	5.94	6.85
February,	850	41	223	2.53	2.64
March,	343	57	157	1.78	2.05
April,	550	24	167	1.90	2.12
May,	210	5	36	0.41	0.47
June,	161	6	27	0.31	0.35
July,	23	4	6	0.07	0.08
August,	556	2	41	0.47	0.54
September,	884	9	132	1.50	1.67
The year,	1120	2	174	1.98	26.72
a 1911.					
October,	1030	34	243	2.76	3.18
November,	1030	122	322	3.66	4.08
December,	768	83	263	2.99	3.45
1912.					
January,	489	....	153	1.74	2.01
February,	....	....	135	1.53	1.65
March,	....	....	442	5.02	5.79
April,	828	29	320	3.64	4.06
May,	286	11	80	0.91	1.05
June,	168	5	23	0.26	0.29
July,	6	3	4	0.05	0.06
August,	260	4	30	0.34	0.39
September,	199	6	33	0.38	0.42
The year,	....	....	171	1.94	26.43
1912.					
October,	††1170	9	184	2.09	2.41
November,	330	51	127	1.44	1.61
December,	362	39	127	1.44	1.66
1913.					
January,	††1270	57	557	6.33	7.30
February,	411	28	104	1.18	1.23
March,	††2740	52	490	5.57	6.42
April,	220	18	83	0.94	1.05
May,	199	8	27	0.31	0.36
June,	126	5	25	0.28	0.31
July,	256	4	32	0.36	0.42
August,	25	2	5	0.06	0.07
September,	39	2	6	0.07	0.08
The year,	††2740	2	147	1.67	22.92
b 1913.					
October,	484	4	85	0.97	1.12
November,	††1280	52	263	2.99	3.34
December,	196	35	91	1.03	1.19
1914.					
January,	....	....	140	1.59	1.83
February,	663	....	120	1.36	1.42
March,	1010	....	231	2.62	3.02
April,	709	57	304	3.45	3.85
May,	††1220	14	245	2.78	3.20
June,	43	4	11	0.12	0.13
July,	11	2	4	0.05	0.06
August,	7	2	3	0.03	0.04
September,	56	2	8	0.09	0.10
The year,	††1280	....	125	1.42	19.30

ESTIMATED MONTHLY DISCHARGE OF CUSSEWAGO CREEK NEAR MEADVILLE, CRAWFORD COUNTY, PA.—(Continued.)

(Drainage area 88 square miles.)

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
c 1914.					
October,	72	2	12	0.14	0.16
November,	220	16	82	0.93	1.04
December,	501	....	126	1.43	1.65
1915.					
January,	....	....	111	1.26	1.45
February,	††1290	78	379	4.31	4.49
March,	90	24	48	0.54	0.62
April,	144	14	44	0.50	0.56
May,	348	19	83	0.94	1.08
June,	21	4	10	0.11	0.12
July,	192	4	46	0.52	0.60
August,	††1700	8	183	2.08	2.40
September,	179	8	40	0.45	0.50
The year,	††1700	2	97	1.10	14.67

Notes.—a Creek frozen January 6 to March 19, 1912, inclusive, and discharge estimated from Brokenstraw Creek at Youngsville.

b Creek frozen January 16 to 30, 1914, and February 15 to March 19, 1914, inclusive, and discharge estimated from climatological records.

c Creek frozen December 15, 1914, to January 6, 1915, January 29 and 30, 1915, and February 4 to 11, 1915, inclusive, and discharge estimated from Brokenstraw Creek at Youngsville.

†† Estimated.

OHIO BASIN—STATION NO. 9.

FRENCH CREEK AT CARLTON, PA.

DESCRIPTION OF STATION.

LOCATION—At two span, steel, through-truss, highway bridge at Carlton, Mercer County.

RECORDS AVAILABLE—Discharge complete from April 29, 1908, to August 7, 1914, and discharge measurements and gage heights from August 8, 1914, to September 30, 1915. For other records on this creek see French Creek at Kimmeytown in this report, and North Branch French Creek at Kimmeytown in 1911 to 1914 reports of the Water Supply Commission.

DRAINAGE AREA—1,070 square miles.

GAGE—A standard chain gage, whose elevation of zero is 1,033.60 feet above mean sea level, is located on the downstream side of the bridge and is read twice daily by E. E. Dean.

CHANNEL—The right bank is high and not subject to overflow, the left bank is low and overflows during high stages, and the bed is composed of sand, gravel and boulders.

REMARKS—Prior to August 8, 1914, a staff gage fastened to the downstream face of the pier in the right span was read twice daily. On August 7, 1914, a chain gage was placed on the same datum over the left channel where the water surface is at a different elevation than at the old staff gage, which will require a re-rating of the station.

DISCHARGE MEASUREMENTS OF FRENCH CREEK AT CARLTON, MERCER COUNTY, PA.

(Drainage area 1,070 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1914.		Sq. ft.	Feet.	Sec.ft.	
30	Dec. 9	Gough,	679	3.73	2400	0.6 method.
	1915.					
31	Aug. 5	Ferris,	2249	9.77	12180	Multiple point method.
32	Aug. 7	Ferris,	1849	8.29	8965	Multiple point method.
33	Aug. 9	Ferris,	1271	6.06	5420	Multiple point method.
34	Aug. 10	Ferris,	1178	5.68	4785	Multiple point method.
35	Aug. 10	Ferris,	1136	5.51	4480	Multiple point method.
36	Aug. 16	Ferris,	889	4.47	3098	Multiple point method.
37	Sept. 6	Ferris,	269	1.41	582	Multiple point method.
38	Sept. 13	Ferris,	211	1.09	477	Multiple point method.
39	Sept. 24	Gough & Bronson,	269	1.61	664	Surface measurement.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF FRENCH CREEK AT CARLTON, MERCER COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.40	0.80	3.80	4.85	5.98	2.99	1.71	1.56	1.12	0.78	1.60	2.47
2,	0.40	0.82	5.95	4.75	8.62	2.57	1.65	1.27	1.08	1.08	1.51	2.01
3,	0.40	0.76	†7.54	4.38	8.72	2.19	1.59	1.21	1.14	1.14	2.35	1.83
4,	0.40	0.74	5.14	4.15	8.52	2.19	1.59	1.25	1.33	1.08	9.81	1.59
5,	0.40	0.77	3.82	3.87	7.70	1.95	1.73	1.45	1.43	1.08	9.74	1.47
6,	0.33	0.80	3.16	3.68	6.98	1.86	1.89	2.08	1.08	1.06	9.90	1.42
7,	0.35	0.81	3.62	9.50	6.36	1.81	2.23	1.88	1.08	1.04	8.25	1.51
8,	0.34	0.88	3.34	6.55	5.74	1.77	2.55	2.88	1.06	2.56	5.67	1.54
9,	0.36	1.25	3.69	6.94	4.96	1.84	2.41	4.29	0.98	4.28	6.18	1.53
10,	0.36	1.48	3.68	6.45	4.52	1.84	2.19	3.55	0.92	4.34	5.67	1.35
11,	0.44	1.58	3.46	4.96	3.95	1.95	2.29	2.75	0.86	3.13	3.95	1.27
12,	0.44	1.38	3.23	3.76	4.50	2.01	3.02	2.16	0.82	2.98	3.90	1.15
13,	0.51	1.32	2.82	3.10	6.08	1.82	3.07	1.79	0.78	4.23	4.08	1.09
14,	0.57	1.26	2.46	2.68	6.90	1.73	2.60	1.51	0.78	3.48	4.08	1.11
15,	0.62	1.24	3.14	2.68	7.85	1.83	2.25	1.47	1.15	2.83	4.22	1.69
16,	0.62	1.31	*3.58	2.36	8.77	2.17	1.89	1.19	1.82	2.56	4.45	1.93
17,	0.70	1.60	3.90	2.34	8.28	2.19	1.70	1.37	1.64	5.45	3.77	2.31
18,	0.82	2.12	3.90	3.25	6.21	2.04	1.53	1.79	1.34	4.13	3.27	3.19
19,	0.92	2.02	3.86	4.88	4.74	1.82	1.46	1.75	1.14	3.16	2.76	3.45
20,	1.14	1.86	3.66	5.00	4.01	1.69	1.35	1.63	0.93	2.48	2.35	3.21
21,	1.35	1.68	3.58	4.40	3.46	1.53	1.31	1.91	0.82	2.83	2.33	2.61
22,	1.19	1.50	3.75	3.50	3.28	1.51	1.24	3.69	0.84	3.03	3.58	2.15
23,	0.98	1.46	3.85	2.75	3.35	1.52	1.17	4.53	0.80	2.68	4.72	1.85
24,	0.82	1.46	3.85	2.60	3.92	1.57	1.11	3.47	0.77	2.03	4.26	1.62
25,	0.72	1.58	3.84	2.55	5.09	1.77	1.09	2.63	0.83	1.82	3.42	1.36
26,	0.64	1.89	3.80	2.48	4.92	2.34	1.11	1.98	0.74	1.62	3.20	1.30
27,	0.62	2.70	3.68	2.50	4.28	2.43	1.29	2.01	0.66	1.58	3.13	2.37
28,	0.60	4.08	3.55	2.22	3.26	2.16	1.61	1.84	0.59	1.62	2.58	4.09
29,	0.60	3.95	3.55	2.05	....	1.98	1.83	1.65	0.58	1.54	2.22	3.23
30,	0.70	3.10	3.70	3.08	....	1.82	1.74	1.51	0.69	1.51	2.92	2.59
31,	0.78	....	4.54	4.11	......	1.77	....	1.41	....	1.74	2.96	....

Notes.—*Creek frozen December 16, 1914, to January 7, 1915, inclusive. †Maximum 8.98 ft. at 8 A. M.

OHIO BASIN—STATION NO. 10.

SUGAR CREEK AT WYATTVILLE, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, pony-truss, highway bridge at Wyattville, Venango County, 3 miles above the mouth.

RECORDS AVAILABLE—Discharge complete May 7, 1910, to September 30, 1915.

DRAINAGE AREA—160 square miles.

GAGE—A sectional chain gage, whose elevation of zero is 1,050.96 feet above mean sea level, is located on the downstream side of the bridge, and is read once daily by T. G. Wyatt.

CHANNEL—The right bank is high and does not overflow, while the left bank overflows only at extreme stages. The bed is composed of gravel. At low water a pool is formed at the section owing to the flat slope of the creek.

DISCHARGE MEASUREMENT OF SUGAR CREEK AT WYATTVILLE, VENANGO COUNTY, PA.

(Drainage area 160 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.ft.	
11	Sept. 26	Bronson & Gough, ...	283	1.96	73	0.6 method.

DISCHARGE TABLE FOR SUGAR CREEK AT WYATTVILLE, VENANGO COUNTY, PA., FROM MAY 7, 1910.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.	Feet.	Sec. ft.
1.00	10	.10	115	.20	683	.30	1475	.40	2450
.10	11	.20	142	.30	748	.40	1555	.50	2540
.20	13	.30	177	.40	813	.50	1640	.60	2630
.30	16	.40	220	.50	880	.60	1730	.70	2720
.40	21	.50	268	.60	950	.70	1820	.80	2810
.50	28	.60	320	.70	1020	.80	1910	.90	2900
.60	37	.70	375	.80	1090	.90	2000	6.00	2990
.70	47	.80	432	.90	1165	5.00	2090		
.80	59	.90	491	4.00	1240	.10	2180		
.90	75	3.00	555	.10	1315	.20	2270		
2.00	94	.10	619	.20	1395	.30	2360		

DAILY MEAN GAGE HEIGHTS. IN FEET, OF SUGAR CREEK AT WYATTVILLE, VENANGO COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.68	1.76	1.85	....	†4.37	2.20	1.99	2.27	1.86	1.74	1.83	2.61
2,	1.68	1.76	2.45	....	4.92	2.20	1.89	2.17	1.86	1.74	1.83	2.51
3,	1.68	1.76	2.35	....	3.82	2.20	1.89	2.07	1.86	1.94	2.43	2.31
4,	1.68	1.76	1.95	....	3.32	2.20	1.89	1.97	1.76	2.14	4.23	2.11
5,	1.68	1.76	1.55	....	3.12	2.20	1.89	1.97	1.76	2.14	3.53	2.01
6,	1.68	1.86	1.75	....	2.92	2.10	1.89	1.97	1.76	2.04	3.03	2.01
7,	1.68	1.86	1.95	4.83	2.82	2.10	1.89	1.97	1.76	2.04	2.43	2.01
8,	1.68	1.86	2.35	3.33	2.82	2.10	1.89	2.87	1.76	4.24	2.73	2.01
9,	1.68	1.86	2.35	2.93	2.82	2.10	1.89	2.57	1.76	2.64	3.03	1.91
10,	1.68	1.86	2.35	2.63	2.82	2.10	1.89	2.37	1.76	2.34	2.93	1.91
11,	1.68	1.86	2.25	2.53	2.92	2.10	2.19	2.27	1.76	2.14	2.93	1.81
12,	1.68	1.76	2.25	2.53	2.92	2.10	2.09	2.17	1.76	2.44	2.93	1.81
13,	1.68	1.76	2.25	2.43	2.92	2.10	1.99	2.17	1.76	2.44	2.83	1.81
14,	1.68	1.76	2.15	2.33	3.82	2.10	1.99	2.07	1.86	2.34	2.83	1.81
15,	1.68	1.76	*	2.13	4.42	2.10	1.99	2.07	1.86	2.24	3.43	1.81
16,	1.78	1.76	....	2.13	3.12	2.10	1.99	2.07	1.76	2.24	2.63	1.81
17,	1.78	1.76	....	2.03	2.92	2.10	1.89	2.27	1.76	6.74	2.53	1.81
18,	1.78	1.76	....	2.13	2.42	2.10	1.89	2.27	1.76	3.44	2.53	1.81
19,	1.78	1.76	....	4.63	2.42	2.00	1.89	2.27	1.76	2.84	2.43	2.51
20,	1.78	1.86	....	3.73	2.42	2.00	1.89	2.27	1.76	2.74	2.43	2.11
21,	1.78	1.86	....	2.43	2.42	2.00	1.89	3.17	1.76	2.84	2.43	2.01
22,	1.78	1.86	....	2.53	2.42	2.00	1.89	2.87	1.76	2.94	3.33	2.01
23,	1.68	1.86	....	2.53	2.42	2.00	1.89	2.27	1.76	2.64	3.03	1.91
24,	1.68	1.86	....	2.43	2.32	2.00	1.89	2.37	1.76	2.34	2.83	1.91
25,	1.68	1.86	....	2.43	2.32	2.00	1.89	2.27	1.76	2.14	2.83	1.81
26,	1.68	1.86	....	2.43	2.22	2.00	1.99	2.17	1.66	2.14	2.73	1.91
27,	1.68	1.86	....	2.43	2.22	2.00	1.99	2.07	1.66	2.14	2.63	2.29
28,	1.68	1.86	....	2.43	2.22	2.00	1.99	2.07	1.66	1.94	2.63	2.29
29,	1.78	1.86	....	2.43	....	2.00	2.59	1.97	1.66	1.84	2.63	2.29
30,	1.78	1.86	....	2.43	....	2.00	2.39	1.97	1.76	1.74	2.78	2.29
31,	1.78	....	....	2.43	....	2.00	....	1.87	....	1.84	2.78	....

Notes.—*Creek frozen December 15, 1914, to January 6, 1915, inclusive. †Maximum 6.00 ft. at 1 P. M.

DAILY DISCHARGE, IN SECOND-FEET, OF SUGAR CREEK AT WYATTVILLE, VENANGO COUNTY, PA.. FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	45	54	67	50	†1530	142	92	166	69	52	64	326
2,	45	54	244	50	2020	142	73	134	69	52	64	273
3,	45	54	198	50	1100	142	73	109	69	83	234	181
4,	45	54	84	50	761	142	73	88	54	126	1420	118
5,	45	54	32	50	632	142	73	88	54	126	901	96
6,	45	69	53	50	504	115	73	88	54	102	574	96
7,	45	69	84	1940	444	115	73	88	54	102	234	96
8,	45	69	198	768	444	115	73	473	54	1430	392	96
9,	45	69	198	510	444	115	73	304	54	342	574	77
10,	45	69	198	836	444	115	73	207	54	194	510	77
11,	45	69	160	284	504	115	139	166	54	126	510	61
12,	45	54	160	284	504	115	113	134	54	239	510	61
13,	45	54	160	234	504	115	92	134	54	239	450	61
14,	45	54	128	190	1100	115	92	109	69	194	450	61
15,	45	54	*46	123	1570	115	92	109	69	156	833	61
16,	57	54	46	123	632	115	92	109	54	156	336	61
17,	57	54	46	100	504	115	73	166	54	3960	284	61
18,	57	54	46	123	230	115	73	166	54	840	284	61
19,	57	54	46	1760	230	94	73	166	54	456	234	273
20,	57	69	46	1040	230	94	73	166	54	398	234	118
21,	57	69	46	234	230	94	73	664	54	456	234	96
22,	57	69	46	284	230	94	73	473	54	517	768	96
23,	45	69	46	284	230	94	73	166	54	342	574	77
24,	45	69	46	284	186	94	73	207	54	194	450	77
25,	45	69	46	284	186	94	73	166	54	126	450	61
26,	45	69	46	234	149	94	92	134	43	126	392	77
27,	45	69	46	234	149	94	92	109	43	126	336	174
28,	45	69	46	234	149	94	93	109	43	83	336	174
29,	57	69	46	234	....	94	315	88	43	65	336	174
30,	57	69	46	234	....	94	216	88	54	52	392	174
31,	57	....	46	234	....	94	....	70	....	65	392	....

Notes.—*Creek frozen December 15, 1914, to January 6, 1915, inclusive, and discharge estimated from Brokenstraw Creek at Youngsville. †Maximum = 2990 sec.-ft.

ESTIMATED MONTHLY DISCHARGE OF SUGAR CREEK AT WYATTVILLE, VENANGO COUNTY, PA.

(Drainage area 160 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	57	45	49	0.31	0.36
November,	69	54	62	0.39	0.44
December,	....	....	89	0.56	0.65
1915.					
January,	1940	....	348	2.18	2.51
February,	2990	149	566	3.54	3.69
March,	142	94	111	0.69	0.80
April,	315	73	94	0.59	0.66
May,	664	70	176	1.10	1.27
June,	69	43	55	0.34	0.38
July,	3960	52	372	2.32	2.68
August,	1420	64	444	2.78	3.20
September,	326	61	116	0.72	0.80
The year,	3960	43	207	1.29	17.44

Note.—Creek frozen December 15, 1914, to January 6, 1915, inclusive, and discharge estimated from Brokenstraw Creek at Youngsville.

OHIO BASIN—STATION NO. 11.

ALLEGHENY RIVER AT FRANKLIN, PA.

DESCRIPTION OF STATION.

LOCATION—At four span, steel, through-truss, highway bridge at 8th Street, Franklin, Venango County.

RECORDS AVAILABLE—Discharge measurement and gage heights of the Water Supply Commission from June 1 to September 30, 1915. Gage heights have been observed by the U. S. Weather Bureau from June 1, 1905, to date. For other records on this river see Allegheny River at Larabee, Kittanning and Freeport; also, Allegheny River at Red House, N. Y., in the 1911 to 1914 reports of the Water Supply Commission.

DRAINAGE AREA—6,010 square miles.

GAGE—A staff gage, whose elevation of zero is 958.26 feet above mean sea level, is painted on the east side of the first pier from the east bank and is read twice daily by Wm. C. Rivers.

CHANNEL—Both banks are high and not subject to overflow and the bed is composed of gravel and boulders.

REMARKS—This station is maintained in co-operation with the U. S. Engineer Office in Pittsburgh.

DISCHARGE MEASUREMENT OF ALLEGHENY RIVER AT FRANKLIN, VENANGO COUNTY, PA.

(Drainage area 6,010 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.ft.	
1	Sept. 27	Gough & Bronson, ...	2610	1.34	3353	0.6 method.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF ALLEGHENY RIVER AT FRANKLIN, VENANGO COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.85	1.95	2.35	2.60
2,	1.55	2.20	2.35	2.20
3,	1.40	2.65	2.65	1.85
4,	1.50	3.50	5.40	1.55
5,	1.30	3.90	6.63	1.40
6,	1.05	3.65	5.95	1.30
7,	0.95	3.00	5.05	1.20
8,	0.80	3.25	3.65	1.20
9,	0.85	†6.73	4.10	1.10
10,	0.75	6.65	4.15	1.35
11,	0.70	5.45	3.30	1.15
12,	0.60	5.97	2.70	1.00
13,	0.70	6.35	2.80	1.00
14,	1.20	5.50	2.55	0.90
15,	1.30	4.20	2.65	0.90
16,	2.03	3.35	3.05	0.80
17,	1.90	5.60	2.75	0.80
18,	1.65	4.40	2.40	1.05
19,	1.35	3.70	2.05	2.20
20,	1.05	3.00	1.75	2.05
21,	0.90	3.00	1.70	1.75
22,	0.80	3.00	3.60	1.55
23,	0.70	2.55	4.35	1.35
24,	0.70	2.15	4.50	1.05
25,	0.60	1.95	3.65	0.92
26,	0.50	1.65	3.05	0.70
27,	0.50	1.80	3.10	1.10
28,	0.40	2.13	2.65	2.30
29,	0.40	1.95	2.60	2.15
30,	0.70	2.67	2.85	1.85
31,	....	2.65	2.90	....

Note.—†Maximum 7.2 ft. at 9 P. M.

OHIO BASIN—STATION NO. 12.

SANDY CREEK AT SANDY LAKE, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, iron, through-truss, highway bridge at Lake Street, Sandy Lake, Mercer County.

RECORDS AVAILABLE—Discharge complete May 11, 1914, to September 30, 1915.

DRAINAGE AREA—54 square miles.

GAGE—A standard chain gage, whose elevation of zero is 1,150.875 feet above mean sea level, is located on the downstream side of the bridge and is read twice daily by T. S. Bailey.

CHANNEL—Both banks are low, with small willows bordering the creek channel, and the bed is composed of gravel and stones, with occasional sand bars. There are two islands above the bridge, and one below, the latter becoming submerged at approximately gage height 2.5 feet.

DISCHARGE MEASUREMENTS OF SANDY CREEK AT SANDY LAKE, MERCER COUNTY, PA.

(Drainage area 54 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1914.		Sq. ft.	Feet.	Sec.ft	
9	Dec. 9	Gough,	63	1.41	84	Surface and 0.6 method.
10	Dec. 9	Gough,	63	1.41	92	Surface and 0.6 method.
	1915.					
11	Sept. 25	Gough & Bronson,	36	1.02	36	Surface and 0.6 method.

DISCHARGE TABLE FOR SANDY CREEK AT SANDY LAKE, MERCER COUNTY, PA., FROM MAY 11, 1914.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
0.30	6	.20	54	.10	223	3.00	485	.90	832
.40	7	.30	68	.20	248	.10	518	4.00	875
.50	9	.40	83	.30	275	.20	553	.10	920
.60	12	.50	100	.40	303	.30	589	.20	965
.70	16	.60	118	.50	332	.40	627	.30	1010
.80	20	.70	137	.60	362	.50	667	.40	1055
.90	26	.80	157	.70	392	.60	707	.50	1100
1.00	33	.90	178	.80	423	.70	748		
.10	42	2.00	200	.90	454	.80	789		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF SANDY CREEK AT SANDY LAKE, MERCER COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	....	0.79	0.45	0.53	0.65
2,	....	0.77	0.45	0.24	0.76
3,	....	0.80	0.46	0.25	0.59
4,	....	0.88	0.54	0.24	0.58
5,	....	1.02	0.47	0.45	0.55
6,	....	0.94	0.41	0.39	0.43
7,	....	0.84	0.43	0.34	0.47
8,	....	0.84	0.40	0.49	0.40
9,	....	0.92	0.44	0.44	0.37
10,	....	0.81	0.56	0.51	0.34
11,	1.37	0.88	0.45	0.57	0.34
12,	2.98	0.70	0.51	0.91	0.41
13,	4.20	0.66	0.62	0.33	0.34
14,	3.28	0.42	0.75	0.27	0.70
15,	2.22	0.57	0.76	0.44	0.37
16,	1.75	0.62	0.69	0.31	0.48
17,	1.38	0.32	0.76	0.43	0.51
18,	1.21	0.53	0.77	0.62	0.56
19,	1.09	0.74	0.67	0.44	0.45
20,	1.09	0.76	0.64	0.47	0.31
21,	1.08	0.52	0.65	0.48	0.31
22,	1.07	0.81	0.40	0.45	0.47
23,	1.06	1.08	0.55	0.53	0.46
24,	1.01	1.04	0.51	0.80	0.45
25,	0.97	0.91	0.55	0.83	0.47
26,	0.91	0.58	0.44	0.86	0.42
27,	0.87	0.79	0.70	0.60	0.46
28,	0.84	0.45	0.37	0.58	0.47
29,	0.92	0.81	0.25	0.53	0.63
30,	0.84	0.47	0.36	0.64	0.65
31,	0.74	....	0.43	0.68	....

DAILY MEAN GAGE HEIGHTS, IN FEET, OF SANDY CREEK AT SANDY LAKE, MERCER COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.48	0.58	0.99	1.72	2.75	0.84	0.90	0.77	0.76	0.81	0.70	1.01
2,	0.63	0.57	1.22	1.45	5.41	0.81	0.88	0.75	0.71	0.87	0.75	0.99
3,	0.45	0.45	1.18	1.37	4.52	0.96	0.86	0.73	0.65	1.19	0.86	0.90
4,	0.43	0.50	1.52	1.17	3.91	0.91	0.75	0.76	0.78	1.47	2.92	0.93
5,	0.32	0.48	1.36	1.20	3.20	0.89	0.85	0.71	0.75	1.65	4.66	0.74
6,	0.44	0.48	1.11	1.13	2.55	0.82	0.93	0.88	0.70	1.46	3.57	0.83
7,	0.43	0.49	0.94	2.56	2.20	0.85	1.00	0.84	0.64	1.83	2.72	0.89
8,	0.43	0.52	1.10	3.37	2.09	0.78	0.95	1.01	0.63	1.35	2.05	0.73
9,	0.57	0.66	1.40	3.11	1.96	0.73	0.98	1.28	0.78	1.60	1.71	0.75
10,	0.56	0.91	1.60	2.55	1.77	0.84	0.94	1.24	0.71	2.65	2.00	0.77
11,	0.38	0.97	1.56	1.67	1.89	1.00	0.86	0.82	0.64	2.41	1.98	0.69
12,	0.47	0.79	1.47	1.20	1.48	0.94	0.95	0.78	0.59	2.27	1.79	0.67
13,	0.46	0.77	1.83	1.06	1.82	0.93	0.93	0.73	0.55	2.06	1.88	0.64
14,	0.66	0.62	1.23	0.99	2.50	0.93	0.85	0.63	0.78	2.04	1.99	0.80
15,	0.85	0.65	1.41	0.98	2.93	1.01	0.90	0.57	0.75	2.06	2.22	0.69
16,	0.66	0.67	1.44	1.38	2.87	1.04	0.91	0.56	0.98	1.76	2.00	0.58
17,	0.85	0.76	1.44	1.06	2.23	1.00	0.86	0.73	1.51	1.56	1.96	0.68
18,	0.87	0.79	1.21	1.29	1.82	0.98	0.76	0.93	1.42	1.48	1.79	0.66
19,	0.82	0.68	0.67	2.02	1.45	0.83	0.87	0.96	1.06	1.34	1.68	1.97
20,	0.83	0.77	0.92	2.07	1.28	0.86	0.86	0.91	0.75	1.14	1.40	1.95
21,	0.78	0.82	0.95	2.12	1.19	0.86	0.85	1.04	0.66	1.21	1.19	1.54
22,	0.66	0.29	1.41	1.99	1.06	0.88	0.79	1.49	0.62	1.37	1.18	1.53
23,	0.48	0.72	1.29	1.43	1.16	0.91	0.87	1.60	0.65	1.63	1.25	0.91
24,	0.46	0.66	1.15	1.47	1.23	0.98	0.84	1.43	0.63	1.54	1.33	0.83
25,	0.45	0.69	1.11	1.19	1.33	1.08	0.75	1.09	0.65	1.13	1.28	0.85
26,	0.51	0.57	1.26	1.26	1.34	1.11	0.77	0.89	0.45	0.86	1.13	0.94
27,	0.48	0.72	1.27	1.11	1.13	1.14	0.87	0.76	0.39	0.89	1.00	1.09
28,	0.47	0.72	1.19	1.32	1.03	0.97	1.00	0.70	0.58	0.88	0.99	1.18
29,	0.45	0.60	1.16	1.66	....	0.98	0.96	0.76	0.54	0.87	1.02	1.[illegible]
30,	0.47	0.85	1.29	1.66	....	0.91	0.85	0.70	0.88	0.72	1.02	0.96
31,	0.47	....	1.33	1.53	....	0.80	....	0.68	....	0.76	1.01	....

DAILY DISCHARGE, IN SECOND-FEET, OF SANDY CREEK AT SANDY LAKE, MERCER COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	....	20	8	10	14
2,	....	19	8	5	18
3,	....	20	8	6	12
4,	....	25	10	5	11
5,	....	35	8	8	10
6,	....	29	7	7	8
7,	....	23	8	6	8
8,	....	22	7	9	7
9,	....	27	8	8	7
10,	....	21	11	9	6
11,	78	25	8	11	6
12,	479	16	9	27	7
13,	965	14	13	6	6
14,	582	7	18	6	16
15,	253	11	18	8	7
16,	147	13	16	6	9
17,	80	6	18	8	9
18,	55	10	19	13	11
19,	41	18	15	8	8
20,	41	18	14	8	6
21,	40	10	14	9	6
22,	39	21	7	8	8
23,	38	40	10	10	8
24,	34	37	9	20	8
25,	31	27	10	22	8
26,	27	11	8	24	7
27,	24	20	16	12	8
28,	22	8	7	11	8
29,	27	21	5	10	13
30,	22	8	7	14	14
31,	18	....	8	15	....

DAILY DISCHARGE, IN SECOND-FEET, OF SANDY CREEK AT SANDY LAKE, MERCER COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	9	11	32	141	408	22	26	19	18	21	16	34
2,	13	11	57	92	1510	21	25	18	16	24	18	32
3,	8	8	53	78	1110	30	24	17	14	53	24	26
4,	8	9	104	50	836	27	18	18	17	95	460	28
5,	6	9	77	54	553	25	23	16	18	128	1170	18
6,	8	9	43	46	347	21	28	25	16	93	695	22
7,	8	9	29	350	248	23	33	22	14	72	898	25
8,	8	10	42	616	221	19	30	34	13	76	212	17
9,	11	14	83	522	191	17	32	65	19	118	139	18
10,	11	27	118	347	151	22	29	60	16	377	200	19
11,	7	31	111	131	82	33	24	21	14	306	196	16
12,	8	20	95	54	97	29	30	19	13	267	155	15
13,	8	19	72	38	161	28	28	17	10	214	174	14
14,	14	13	58	32	332	27	23	13	19	209	198	20
15,	23	14	85	32	463	34	26	11	18	214	253	16
16,	14	15	90	80	445	37	27	11	32	149	200	11
17,	23	18	90	38	256	33	24	17	102	111	191	15
18,	24	20	55	67	161	32	18	28	86	97	155	14
19,	21	15	15	205	92	22	24	30	38	74	124	193
20,	22	19	27	216	65	24	24	27	18	47	83	189
21,	19	21	30	228	53	24	23	37	14	55	53	107
22,	14	6	85	198	38	25	20	98	13	78	52	105
23,	9	17	67	88	49	27	24	118	14	124	61	27
24,	8	14	48	95	58	32	22	88	13	107	72	23
25,	8	16	43	53	72	40	18	41	14	46	65	23
26,	9	11	62	62	74	43	19	25	8	24	46	29
27,	9	17	64	43	46	47	24	18	7	25	33	41
28,	8	17	53	71	36	31	33	16	11	25	32	52
29,	8	12	49	129	....	32	30	18	10	24	35	40
30,	8	23	67	129	....	27	23	16	25	17	35	30
31,	8	....	72	105	....	20	....	15	....	18	34	....

Note.—Discharges above 1100 sec.-ft. are estimated.

ESTIMATED MONTHLY DISCHARGE OF SANDY CREEK AT SANDY LAKE, MERCER COUNTY, PA.

(Drainage area 54 square miles).

	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
June,	40	6	19	0.35	0.39
July,	19	5	11	0.20	0.23
August,	27	5	11	0.20	0.23
September,	18	6	9	0.17	0.19
1914.					
October,	24	7	12	0.22	0.25
November,	31	6	15	0.28	0.31
December,	118	15	64	1.19	1.37
1915.					
January,	616	32	142	2.63	3.03
February,	††1510	36	291	5.39	5.61
March,	47	17	28	0.52	0.60
April,	33	18	25	0.46	0.51
May,	118	11	32	0.59	0.68
June,	102	7	21	0.39	0.44
July,	377	17	106	1.96	2.26
August,	††1170	16	180	3.33	3.84
September,	193	11	41	0.76	0.85
The year,	††1510	6	80	1.48	19.75

Note.—††Estimated.

OHIO BASIN—STATION NO. 13.

CLARION RIVER AT CLARION, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge, about one mile above Clarion, Clarion County.

RECORDS—AVAILABLE—Discharge complete November 22, 1909, to September 30, 1915.

DRAINAGE AREA—910 square miles.

GAGE—A Mott gage, whose elevation of zero is 1,052.0 feet above mean sea level, is located on the downstream side of the bridge and is read once daily by J. A. Miller.

CHANNEL—Both banks are high and not subject to overflow, and the bed is composed of rock, gravel and boulders.

REMARKS—The U. S. Weather Bureau has observed gage heights at this station since November 17, 1884.

DISCHARGE MEASUREMENT OF CLARION RIVER AT CLARION, CLARION COUNTY, PA.

(Drainage area 910 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.ft	
26	Aug. 21	Wilson & Taylor, ...	562	0.76	401	0.6 method.

DISCHARGE TABLE FOR CLARION RIVER AT CLARION, CLARION COUNTY, PA., FROM MARCH 20, 1908.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
—0.70	90	.30	1640	.30	6440	.30	14430	.30	23130
—0.60	100	.40	1740	.40	6660	.40	14720	.40	23420
—0.50	110	.50	1840	.50	6880	.50	15010	.50	23710
—0.40	120	.60	1950	.60	7100	.60	15300	.60	24000
—0.30	135	.70	2060	.70	7330	.70	15590	.70	24290
—0.20	155	.80	2180	.80	7560	.80	15880	.80	24580
—0.10	180	.90	2300	.90	7790	.90	16170	.90	24870
0.00	215	3.00	2425	6.00	8020	9.00	16460	12.00	25160
.10	250	.10	2550	.10	8260	.10	16750	.10	25450
.20	285	.20	2680	.20	8500	.20	17040	.20	25740
.30	325	.30	2810	.30	8750	.30	17330	.30	26030
.40	370	.40	2950	.40	9000	.40	17620	.40	26320
.50	420	.50	3095	.50	9260	.50	17910	.50	26610
.60	470	.60	3240	.60	9530	.60	18200	.60	26900
.70	520	.70	3390	.70	9800	.70	18490	.70	27190
.80	570	.80	3550	.80	10080	.80	18780	.80	27480
.90	630	.90	3710	.90	10370	.90	19070	.90	27770
1.00	675	4.00	3880	7.00	10660	10.00	19360	13.00	28060
.10	735	.10	4050	.10	10950	.10	19650	.10	28350
.20	795	.20	4220	.20	11240	.20	19940	.20	28640
.30	860	.30	4400	.30	11530	.30	20230	.30	28930
.40	925	.40	4600	.40	11820	.40	20520	.40	29220
.50	995	.50	4800	.50	12110	.50	20810	.50	29510
.60	1065	.60	5000	.60	12400	.60	21100	.60	29800
.70	1135	.70	5200	.70	12690	.70	21390	.70	30090
.80	1210	.80	5400	.80	12980	.80	21680	.80	30380
.90	1290	.90	5600	.90	13270	.90	21970	.90	30670
2.00	1370	5.00	5800	8.00	13560	11.00	22260	14.00	30960
.10	1460	.10	6010	.10	13850	.10	22550		
.20	1550	.20	6220	.20	14140	.20	22840		

NOTE—The applicability of the above table has been changed from January 1, 1912, as previously published, to March 20, 1908, and consequently, the daily discharge from January 1, 1910, to December 31, 1911, has been revised and republished in this report.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF CLARION RIVER AT CLARION, CLARION COUNTY, PA., FOR THE YEAR 1910.

DAY.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.	OCT.	NOV.	DEC.
1,	—0.40	2.00	10.80	2.00	3.00	1.90	0.30	0.10	—0.60	0.60	—0.40	2.60
2,	—0.40	2.00	9.60	2.00	2.50	2.00	0.30	0.10	—0.60	0.40	—0.40	2.20
3,	—0.40	2.00	10.00	2.00	2.40	1.90	0.30	0.00	—0.40	0.40	—0.50	2.00
4,	—0.40	2.00	8.60	2.00	2.50	2.80	0.30	0.00	—0.40	0.30	—0.60	2.00
5,	—0.40	1.90	7.60	2.60	2.50	2.60	0.30	0.00	0.00	0.30	—0.60	2.00
6,	—0.30	1.60	7.30	2.70	2.50	2.00	0.30	0.00	0.00	0.40	—0.60	1.90
7,	—0.30	1.40	7.00	2.80	2.40	2.00	0.30	—0.20	0.10	0.00	—0.60	1.60
8,	—0.30	1.40	8.00	2.40	2.40	1.90	0.30	—0.20	0.10	—0.40	—0.40	1.40
9,	—0.30	1.20	6.00	2.20	2.30	1.70	0.30	—0.30	0.10	—0.60	—0.40	1.20
10,	—0.30	1.10	6.20	2.00	2.40	1.70	0.30	—0.30	0.10	0.20	—0.40	1.20
11,	—0.30	1.00	5.00	2.00	2.30	1.40	0.30	—0.30	0.10	0.00	0.60	1.00
12,	—0.30	1.00	4.60	2.00	2.30	1.40	0.30	—0.30	0.10	—0.20	1.10	1.00
13,	—0.30	1.20	4.60	1.40	2.10	1.40	0.30	—0.30	0.10	—0.40	1.60	1.50
14,	—0.30	1.50	4.30	1.00	2.00	1.60	0.20	—0.30	0.00	—0.50	1.30	1.80
15,	—0.30	1.40	3.80	0.50	1.90	1.50	0.20	—0.40	0.00	—0.50	1.60	1.20
16,	—0.30	1.40	3.60	0.50	1.50	1.20	0.20	—0.40	0.00	—0.50	1.20	1.20
17,	—0.30	1.50	2.90	0.20	1.20	1.00	0.80	—0.40	0.00	—0.50	1.20	1.20
18,	0.00	1.50	2.60	1.00	1.20	1.00	0.60	—0.50	0.00	—0.50	1.10	1.20
19,	12.00	1.50	2.90	1.10	1.20	1.00	0.60	—0.50	0.00	—0.50	1.00	1.20
20,	5.60	1.20	2.90	1.40	1.20	1.00	0.50	—0.50	0.00	—0.60	1.00	1.20
21,	4.00	1.40	2.90	3.00	1.40	0.90	0.50	—0.50	0.00	—0.60	1.00	1.20
22,	8.20	5.60	4.80	3.40	1.20	0.60	0.30	—0.50	0.00	—0.60	1.20	1.20
23,	6.00	5.30	4.60	3.50	1.60	0.60	0.30	—0.60	0.00	—0.40	1.20	1.20
24,	5.60	2.80	4.60	3.60	2.00	0.50	0.30	—0.60	0.00	—0.40	1.50	1.20
25,	4.00	2.90	4.60	3.70	2.20	0.50	0.20	—0.60	0.00	—0.40	1.90	1.20
26,	3.00	2.90	4.60	5.70	2.00	0.40	0.20	—0.60	0.20	—0.40	3.00	1.20
27,	2.50	3.40	4.50	4.90	2.00	0.30	0.20	—0.60	0.20	—0.30	2.60	1.20
28,	2.50	†13.00	4.50	4.00	1.90	0.30	0.20	—0.60	0.70	0.70	2.40	1.20
29,	2.00	....	3.00	3.50	1.80	0.30	0.20	—0.60	0.90	0.80	2.60	2.00
30,	2.00	....	3.50	3.20	1.90	0.30	0.20	—0.60	0.80	0.90	2.80	7.00
31,	2.00	....	3.40	....	2.00	....	0.20	—0.60	....	0.00	....	5.40

Note.—†Maximum 14.5 ft. at 4 P. M.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF CLARION RIVER AT CLARION, CLARION COUNTY, PA.. FOR THE YEAR 1911.

DAY.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.	OCT.	NOV.	DEC.
1,	5.50	3.90	2.10	3.10	3.40	0.70	0.50	—0.40	4.00	4.90	1.70	2.60
2,	4.30	3.90	2.10	3.50	3.10	0.70	0.50	—0.50	3.20	†7.70	2.90	2.90
3,	6.80	3.60	2.00	2.80	2.90	0.50	0.40	—0.20	2.90	6.00	1.60	2.60
4,	5.40	2.90	1.80	2.40	2.40	0.50	0.40	—0.20	2.20	4.60	1.50	2.60
5,	5.00	2.80	1.80	2.90	2.20	0.30	0.20	—0.10	2.00	4.30	1.50	2.50
6,	4.60	2.60	1.80	4.10	2.00	0.50	0.00	—0.60	8.20	3.00	1.50	2.50
7,	3.50	2.60	1.40	4.60	1.80	0.40	0.00	0.00	7.20	3.90	2.00	2.00
8,	3.40	2.40	1.10	5.30	1.60	0.40	0.00	0.00	5.00	4.10	3.10	1.90
9,	3.00	2.00	1.10	4.60	1.60	0.20	0.00	0.00	4.30	3.00	2.70	1.90
10,	2.90	1.90	1.30	4.30	1.50	0.20	0.00	0.00	6.80	2.80	2.20	2.00
11,	2.90	1.60	1.50	4.00	1.50	0.20	0.00	0.00	5.20	3.00	2.00	2.20
12,	3.40	1.60	2.00	3.60	1.40	1.00	—0.20	0.00	4.20	2.70	2.00	2.90
13,	4.00	1.60	2.40	3.30	1.40	3.60	—0.40	0.00	4.20	2.50	2.00	4.90
14,	6.60	1.50	2.60	3.10	1.40	2.00	—0.20	0.00	2.90	2.50	2.00	5.40
15,	9.60	2.80	2.50	5.60	1.40	1.60	0.00	0.00	5.40	2.80	2.00	5.00
16,	7.00	3.30	2.10	4.90	1.40	1.00	0.00	1.20	8.00	2.30	1.90	5.70
17,	6.20	2.70	1.80	4.60	1.20	1.00	0.00	1.90	5.20	2.20	1.90	5.50
18,	5.70	3.70	2.10	3.60	1.00	1.00	0.00	1.40	4.80	4.60	3.40	5.00
19,	3.00	5.20	3.20	3.20	1.20	1.00	0.00	1.00	3.20	5.00	2.80	4.10
20,	2.90	5.00	2.90	3.40	1.00	1.00	0.00	1.00	3.00	3.90	4.80	4.00
21,	2.90	4.00	2.70	5.10	1.00	0.80	0.00	1.00	2.70	3.40	3.60	4.00
22,	2.80	2.70	3.00	4.20	1.00	0.60	—0.20	0.50	2.70	3.20	3.30	3.00
23,	2.60	2.70	3.40	4.70	1.00	0.40	—0.30	0.20	2.20	3.30	3.10	2.90
24,	1.90	2.40	3.60	4.40	0.90	0.40	0.00	0.30	2.00	2.90	3.00	2.30
25,	1.60	2.40	3.00	3.60	0.90	0.40	0.00	0.60	2.00	2.40	3.70	2.80
26,	1.60	2.50	3.00	3.40	0.90	0.50	0.00	4.10	2.00	2.20	3.60	2.60
27,	1.50	2.40	2.80	3.10	0.90	0.50	—0.30	3.30	1.70	2.00	3.40	2.60
28,	5.90	2.60	5.10	2.70	0.90	0.50	—0.20	1.80	1.30	2.00	3.50	2.80
29,	7.10	....	4.20	2.50	0.90	0.80	—0.20	10.30	2.40	2.00	3.00	2.60
30,	5.00	....	3.60	2.70	0.90	0.60	—0.20	7.60	5.70	1.70	2.70	2.40
31,	4.60	....	3.50	....	0.70	....	—0.30	5.00	....	1.80	....	2.50

Note.—†Maximum 8.0 ft. at 2 P. M.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF CLARION RIVER AT CLARION, CLARION COUNTY, PA., FOR THE YEAR ENDNG SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	—0.60	—0.20	0.21	2.12	†3.53	3.24	1.54	0.85	1.65	2.06	1.66	1.36
2,	—0.70	—0.30	0.61	2.12	5.93	3.04	1.34	0.85	1.25	6.26	1.46	1.16
3,	—0.70	—0.30	0.71	2.12	6.23	2.94	1.24	0.75	1.45	5.36	2.16	0.96
4,	—0.70	—0.30	1.51	2.12	5.83	2.74	1.14	0.95	1.85	5.06	3.06	0.76
5,	—0.70	—0.30	1.21	2.12	5.43	2.44	1.04	1.05	1.65	4.26	2.86	0.66
6,	—0.70	—0.40	1.01	2.12	5.23	2.24	1.04	1.05	1.35	3.36	2.56	0.66
7,	—0.70	—0.40	1.31	6.92	4.63	2.24	0.94	1.15	1.15	3.06	2.56	0.86
8,	—0.70	—0.40	1.61	3.12	4.23	2.04	1.34	1.55	1.35	3.26	2.36	0.76
9,	—0.70	—0.20	1.21	2.82	3.93	1.94	1.74	1.75	1.35	3.56	1.96	0.66
10,	—0.60	—0.10	1.11	2.42	3.73	1.94	2.14	1.55	1.25	3.46	2.26	0.56
11,	—0.50	—0.20	1.01	2.12	3.53	2.24	2.54	1.25	1.05	2.86	2.06	0.56
12,	—0.40	—0.20	1.01	2.32	3.93	2.04	2.84	1.05	0.95	3.26	1.66	0.56
13,	—0.40	—0.30	0.91	2.12	4.33	1.84	3.34	0.95	1.15	4.06	1.36	0.46
14,	—0.20	—0.30	1.01	2.02	3.93	1.54	3.34	0.85	1.45	3.66	1.26	0.36
15,	—0.10	—0.20	1.01	2.32	4.23	1.44	2.84	0.85	1.65	3.16	1.16	0.36
16,	0.10	0.00	1.01	2.12	4.03	1.34	2.34	0.95	1.75	3.56	1.16	0.26
17,	0.00	—0.10	1.01	1.92	3.83	1.34	2.24	1.25	1.45	2.96	0.96	0.16
18,	0.10	—0.10	1.01	2.22	3.73	1.24	2.04	1.25	1.25	2.76	0.76	0.16
19,	0.10	—0.10	1.01	3.92	3.53	1.34	1.84	1.45	1.45	3.16	0.76	0.66
20,	0.10	0.00	1.01	4.12	3.43	1.44	1.74	1.35	1.35	2.86	0.66	0.86
21,	0.00	0.00	1.01	3.82	3.33	1.44	1.64	1.55	1.15	2.66	0.77	1.16
22,	0.00	—0.10	1.61	3.42	3.13	1.34	1.44	2.65	1.05	2.96	1.56	1.16
23,	—0.10	—0.10	1.61	3.82	2.93	1.34	1.34	4.45	0.95	2.56	1.96	1.26
24,	—0.10	—0.10	1.61	3.52	3.13	1.54	1.14	4.15	0.85	2.26	2.26	0.96
25,	—0.20	—0.10	1.61	3.12	4.23	1.54	1.04	3.75	0.85	2.06	2.06	0.96
26,	—0.20	—0.20	1.61	2.92	4.03	1.74	0.84	3.35	0.75	1.56	1.76	0.76
27,	—0.20	—0.20	1.61	2.72	3.73	1.84	0.84	3.05	0.65	1.26	1.56	1.06
28,	—0.30	—0.30	1.61	2.52	3.43	1.84	1.14	2.55	0.55	1.26	1.46	1.46
29,	—0.30	—0.30	1.61	2.12	....	1.74	1.04	2.15	0.45	1.46	1.66	1.36
30,	—0.10	0.00	2.11	2.02	....	1.64	0.94	1.95	0.85	1.76	1.66	1.16
31,	—0.10	....	2.11	3.32	....	1.64	....	1.85	....	1.96	1.46	....

Note.—†Maximum 7.43 ft. at 2 P. M.

DAILY DISCHARGE, IN SECOND-FEET, OF CLARION RIVER AT CLARION, CLARION COUNTY, PA., FOR THE YEAR 1910.

DAY.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.	OCT.	NOV.	DEC.
1,	120	1870	21700	1370	2420	1290	325	250	100	470	120	1950
2,	120	1370	18200	1370	1840	1370	325	250	100	370	120	1550
3,	120	1370	19400	1370	1740	1290	325	215	120	370	110	1370
4,	120	1370	15300	1370	1840	2180	325	215	120	325	100	1370
5,	120	1290	12400	1950	1840	1950	325	215	215	325	100	1370
6,	135	1060	11500	2060	1840	1370	325	215	215	370	100	1290
7,	135	925	10700	2180	1740	1370	325	155	250	215	100	1060
8,	135	925	13600	1740	1740	1290	325	155	250	120	120	925
9,	135	795	8020	1550	1640	1140	325	135	250	100	120	795
10,	135	785	8500	1870	1740	1140	325	135	250	285	120	795
11,	135	675	5800	1870	1640	925	325	135	250	215	470	675
12,	135	675	5000	1370	1640	925	325	135	250	155	735	675
13,	135	795	5000	925	1460	925	325	135	250	120	1060	995
14,	135	995	4400	675	1370	1060	285	135	215	110	860	1210
15,	135	925	3550	420	1290	995	285	120	215	110	1060	795
16,	135	925	3240	420	995	795	285	120	215	110	795	795
17,	135	995	2300	285	795	675	570	120	215	110	795	795
18,	215	995	1950	675	795	675	470	110	215	110	785	795
19,	25200	995	2300	735	795	675	470	110	215	110	675	795
20,	7100	795	2300	925	795	675	420	110	215	100	675	795
21,	3880	925	2800	2420	925	620	420	110	215	100	675	795
22,	14100	7100	5400	2950	795	470	325	110	215	100	795	795
23,	8020	6440	5000	3100	1060	470	325	100	215	120	795	795
24,	7100	2180	5000	3240	1370	420	325	100	215	120	995	795
25,	3880	2300	5000	3390	1550	420	285	100	215	120	1290	795
26,	2420	2300	5000	7330	1370	370	285	100	285	120	2420	795
27,	1840	2950	4800	5600	1370	325	285	100	285	135	1950	795
28,	1840	†28100	4800	3880	1290	325	285	100	520	520	1740	795
29,	1370	....	2420	3100	1210	325	285	100	620	570	1950	1370
30,	1370	....	3100	2680	1290	325	285	100	570	620	2180	10700
31,	1370	....	2950	....	1370	....	285	100	....	215	....	6660

Note.—†Maximum = 32400 sec.-ft.

DAILY DISCHARGE, IN SECOND-FEET, OF CLARION RIVER AT CLARION, CLARION COUNTY, PA., FOR THE YEAR 1911.

DAY.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.	OCT.	NOV.	DEC.
1,	6886	3710	1460	2550	1740	520	420	120	3880	5600	1140	1950
2,	4400	3710	1460	3100	2550	520	420	110	2680	†12700	2300	2300
3,	10100	3240	1370	2180	2300	420	370	165	2300	8020	1060	1950
4,	6660	2300	1210	1740	1740	420	370	156	1550	5000	995	1950
5,	5800	2180	1210	2300	1550	325	285	180	1370	4400	995	1840
6,	5000	1950	1210	4050	1370	420	215	100	14100	2420	995	1840
7,	3100	1950	925	5000	1210	370	215	215	11200	3710	1370	1370
8,	2950	1740	735	6440	1060	370	215	215	5800	4050	2550	1290
9,	2420	1370	735	5000	1060	285	215	216	4400	2420	2060	1290
10,	2300	1290	860	4400	995	285	215	215	10100	2180	1550	1370
11,	2300	1060	995	3880	995	285	215	215	6220	2420	1370	1550
12,	2950	1060	1370	3240	925	675	155	215	4220	2060	1370	2300
13,	3880	1060	1740	2810	925	3240	120	215	4220	1840	1370	5600
14,	9530	995	1950	2550	925	1370	155	215	2300	1840	1370	6660
15,	18200	2180	1840	7100	925	1060	215	215	6660	2180	1370	5800
16,	10700	2810	1460	5600	925	675	215	795	13600	1640	1290	7330
17,	8500	2060	1210	5000	795	675	215	1290	6220	1550	1290	6880
18,	7330	3390	1460	3240	675	675	215	925	5400	5000	2950	5800
19,	2420	6220	2680	2680	795	675	215	676	2680	5800	2180	4050
20,	2300	5800	2300	2950	675	675	215	676	2420	3710	5400	3880
21,	2300	3880	2060	6010	675	570	215	675	2060	2950	3240	3880
22,	2180	2060	2420	4220	675	470	155	420	2060	2680	2810	2420
23,	1950	2060	2950	5200	675	370	135	285	1550	2810	2550	2300
24,	1290	1740	3240	4600	620	870	215	325	1370	2300	2420	2180
25,	1060	1740	2420	3240	620	370	215	470	1370	1740	3390	2180
26,	1060	1840	2420	2950	620	420	215	4050	1370	1550	3240	1950
27,	995	1740	2180	2550	620	420	135	2810	1140	1370	2950	1950
28,	7790	1950	6010	2060	620	420	155	1210	860	1370	3100	2180
29,	11000	....	4220	1840	620	570	155	20200	1740	1370	2420	1950
30,	5800	....	3240	2060	620	470	155	12400	7330	1140	2060	1740
31,	5000	....	3100	....	520	....	135	5800	....	1210	....	1840

Note.—†Maximum = 13600 sec.-ft.

DAILY DISCHARGE, IN SECOND-FEET, OF CLARION RIVER AT CLARION, CLARION COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	100	155	289	1480	†3140	2730	1020	595	1100	1420	1110	899
2,	90	135	475	1480	7860	2480	886	595	827	8650	967	771
3,	90	135	525	1480	8580	2350	821	545	960	6570	1510	653
4,	90	135	1000	1480	7630	2110	759	648	1250	5930	2500	550
5,	90	135	802	1480	6730	1780	699	705	1100	4330	2250	500
6,	90	120	681	1480	6290	1590	699	705	892	2890	1910	500
7,	90	120	866	10400	6060	1590	642	765	765	2500	1910	600
8,	90	120	1070	2580	4270	1410	886	1030	892	2760	1700	550
9,	90	155	802	2200	3760	1320	1160	1170	892	3180	1340	500
10,	100	180	741	1760	3440	1320	1500	1030	827	3040	1600	450
11,	110	155	681	1480	3140	1590	1880	827	705	2250	1420	450
12,	120	155	681	1660	3760	1410	2230	705	648	2760	1110	450
13,	120	135	626	1480	4460	1240	2870	648	765	3980	899	400
14,	155	135	681	1390	3760	1020	2870	595	960	3330	834	352
15,	180	155	681	1660	4270	953	2230	595	1030	2630	771	352
16,	250	215	681	1480	3930	886	1680	648	1170	1910	771	309
17,	215	180	681	1310	3600	886	1590	827	960	2380	653	271
18,	250	180	681	1570	3440	821	1410	827	827	2130	550	271
19,	250	180	681	3740	3140	886	1240	960	960	2630	550	500
20,	250	215	681	4080	2990	953	1160	892	892	2250	500	600
21,	215	215	681	3580	2850	953	1090	1030	765	2020	555	771
22,	215	180	1070	2980	2590	886	953	2000	705	2380	1040	771
23,	180	180	1070	3580	2340	886	886	4700	648	1910	1340	834
24,	180	180	1070	3120	2590	1020	759	4140	595	1600	1600	653
25,	155	180	1070	2580	4270	1020	699	3470	595	1420	1420	653
26,	155	155	1070	2320	3930	1160	590	2880	545	1040	1180	550
27,	155	155	1070	2080	3440	1240	590	2490	495	834	1040	711
28,	135	135	1070	1860	2990	1240	759	1900	445	834	967	967
29,	135	135	1070	1480	....	1160	699	1500	395	967	1110	899
30,	180	215	1470	1890	....	1090	642	1330	595	1180	1110	771
31,	180	....	1470	2840	....	1090	....	1250	....	1340	967	....

Note—†Maximum = 11900 sec.-ft.

ESTIMATED MONTHLY DISCHARGE OF CLARION RIVER AT CLARION, CLARION COUNTY, PA.

(Drainage area 910 square miles).

	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1910.					
January,	25200	120	2640	2.90	3.34
February,	32400	735	2580	2.84	2.96
March,	21700	1950	7130	7.84	9.04
April,	7830	285	2060	2.26	2.52
May,	2420	795	1400	1.54	1.78
June,	2180	325	893	0.98	1.09
July,	570	285	335	0.37	0.43
August,	250	100	138	0.15	0.17
September,	620	100	249	0.27	0.30
October,	620	100	224	0.25	0.29
November,	2420	100	792	0.87	0.97
December,	10700	675	1480	1.63	1.88
The year,	32400	100	1660	1.82	24.77
1911.					
January,	18200	995	5100	5.60	6.46
February,	6220	995	2400	2.64	2.75
March,	6010	735	2010	2.21	2.55
April,	7100	1740	3680	4.04	4.51
May,	2550	520	1000	1.10	1.27
June,	3240	285	612	0.67	0.75
July,	420	120	218	0.24	0.28
August,	20200	100	1800	1.98	2.28
September,	14100	860	4410	4.85	5.41
October,	13600	1140	3190	3.51	4.05
November,	5400	995	2100	2.31	2.56
December,	7330	1290	2950	3.24	3.74
The year,	20200	100	2460	2.70	36.61
1914.					
October,	250	90	152	0.17	0.20
November,	215	120	155	0.17	0.19
December,	1470	289	845	0.93	1.07
1915.					
January,	10400	1310	2370	2.60	3.00
February,	11900	2340	4220	4.64	4.83
March,	2730	821	1320	1.45	1.67
April,	2870	590	1200	1.32	1.47
May	4700	545	1360	1.49	1.72
June,	1250	395	807	0.89	0.99
July,	8650	834	2680	2.95	3.40
August,	2500	600	1200	1.32	1.52
September,	967	271	584	0.64	0.71
The year,	11900	90	1410	1.55	20.77

OHIO BASIN—STATION NO. 14.

RED BANK CREEK AT ST. CHARLES, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, through-truss bridge at St. Charles, Clarion County.

RECORDS AVAILABLE—Discharge complete from October 30, 1909, to September 30, 1915.

DRAINAGE AREA—540 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the upstream side of the bridge and is read twice daily by W. H. Bish.

CHANNEL—The right bank overflows at extreme stages, the left bank is high and does not overflow, and the bed is composed of large rocks.

DISCHARGE MEASUREMENTS OF RED BANK CREEK AT ST. CHARLES, CLARION COUNTY, PA.

(Drainage area 540 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
			Sq. ft.	Feet.	Sec.ft.	
15	1914. Dec. 8	Taylor & Gough, ...	346	2.15	405	0.6 method.
16	1915. Aug. 20	Wilson & Taylor, ...	118	1.55	203	Wading msmt. 120 ft. above bridge.

DISCHARGE TABLE FOR RED BANK CREEK AT ST. CHARLES, CLARION COUNTY, PA., FROM JANUARY 1, 1912.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
0.60	5	.20	470	.80	1840	.40	4585	7.00	7545
.70	10	.30	520	.90	1975	.50	4770	.10	7730
.80	15	.40	570	4.00	2120	.60	4955	.20	7915
.90	25	.50	630	.10	2275	.70	5140	.30	8100
1.00	40	.60	700	.20	2440	.80	5325	.40	8285
.10	60	.70	770	.30	2610	.90	5510	.50	8470
.20	80	.80	840	.40	2780	6.00	5695	.60	8655
.30	110	.90	910	.50	2950	.10	5880	.70	8840
.40	140	3.00	990	.60	3125	.20	6065	.80	9025
.50	175	.10	1070	.70	3300	.30	6250	.90	9210
.60	210	.20	1150	.80	3475	.40	6435	8.00	9395
.70	245	.30	1240	.90	3660	.50	6620		
.80	285	.40	1350	5.00	3845	.60	6805		
.90	330	.50	1465	.10	4030	.70	6990		
2.00	375	.60	1585	.20	4215	.80	7175		
.10	420	.70	1710	.30	4400	.90	7360		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF RED BANK CREEK AT ST. CHARLES, CLARION COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.90	0.91	....	2.95	†9.09	4.44	2.05	1.50	2.82	2.52	1.70	1.55
2,	0.90	0.99	....	2.60	8.57	3.89	1.95	1.57	2.64	3.37	2.20	1.52
3,	1.00	1.01	....	2.38	6.59	3.39	1.87	1.63	2.54	4.17	2.47	1.52
4,	0.90	1.09	....	2.30	4.99	2.89	1.82	1.65	3.39	4.82	3.57	1.48
5,	0.82	1.07	....	2.22	4.47	2.54	1.77	1.50	2.84	3.80	2.94	1.45
6,	0.90	**	....	2.38	4.11	2.87	1.85	1.47	2.62	3.27	2.64	1.40
7,	0.90	....	....	4.25	3.84	2.27	1.95	1.47	2.46	2.87	2.50	1.42
8,	0.90	....	2.15	9.73	3.69	2.17	1.89	1.57	2.36	2.70	2.64	1.52
9,	0.84	....	2.48	6.18	3.44	2.11	1.97	1.67	2.22	3.04	2.50	1.50
10,	0.90	....	2.38	5.40	3.14	2.21	2.05	1.63	2.12	2.77	2.34	1.48
11,	0.90	....	2.28	4.80	2.94	2.31	2.22	1.55	2.02	2.50	2.20	1.42
12,	0.84	....	2.20	2.95	2.64	2.27	2.85	1.57	1.92	2.90	2.12	1.35
13,	0.90	....	*	2.65	2.47	2.04	2.19	1.60	2.86	3.07	2.04	1.32
14,	0.84	....	....	2.48	3.04	2.11	2.12	1.68	3.66	2.80	1.94	1.28
15,	0.92	....	....	2.38	6.59	2.21	2.07	1.55	3.36	2.70	1.84	1.22
16,	0.98	....	....	2.80	6.24	2.34	2.05	1.57	3.09	2.62	1.74	1.15
17,	0.92	....	....	2.22	5.89	2.44	1.95	1.57	2.79	2.54	1.64	1.08
18,	1.08	....	....	4.68	5.39	2.37	1.87	1.67	2.46	2.50	1.50	2.15
19,	1.25	....	....	7.63	4.89	2.29	1.95	1.73	2.14	2.40	1.50	2.02
20,	1.22	....	....	6.85	4.49	2.24	2.05	1.63	1.89	2.80	1.47	1.95
21,	1.08	....	3.05	6.10	3.94	2.19	1.99	1.80	1.76	3.87	1.90	1.98
22,	1.00	....	3.08	5.40	3.64	2.17	1.89	4.40	1.69	3.12	2.75	1.88
23,	0.95	....	2.95	4.90	5.74	2.19	1.32	4.23	1.62	2.52	2.82	1.70
24,	0.90	....	2.78	4.30	6.52	2.27	1.79	4.08	1.56	2.07	2.55	1.52
25,	0.85	....	2.65	3.40	5.89	2.21	1.77	3.93	1.46	2.27	2.38	1.45
26,	0.80	....	2.52	3.55	5.39	2.47	1.72	3.67	1.46	2.14	2.22	1.52
27,	0.82	....	2.48	3.25	5.04	2.31	1.67	3.53	1.52	2.10	2.08	1.52
28,	0.88	....	3.25	2.95	4.74	2.24	1.62	3.30	1.44	2.00	1.92	1.58
29,	0.88	....	3.90	2.52	....	2.19	1.59	3.17	1.56	1.87	1.95	1.52
30,	0.88	....	3.55	2.25	....	2.21	1.52	3.00	2.06	1.90	1.78	1.52
31,	0.82	....	3.25	1.98	....	2.11	....	2.75	....	1.84	1.60	....

Notes.—**Gage removed owing to reconstruction of bridge. *Creek frozen December 13 to 20, 1914, inclusive. †Maximum 10.59 ft. at 8. P. M.

DAILY DISCHARGE, IN SECOND-FEET, OF RED BANK CREEK AT ST. CHARLES, CLARION COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	25	26	....	950	†11400	2850	398	175	854	644	245	192
2,	25	38	....	700	10400	1960	352	200	728	1320	470	182
3,	40	42	....	560	6790	1340	316	220	658	2390	612	182
4,	25	58	....	520	3830	903	294	192	1340	3510	1550	168
5,	17	54	....	480	2900	658	273	175	868	1840	942	158
6,	25	**	....	560	2290	555	308	164	714	1210	728	140
7,	25	....	....	2520	1890	506	352	164	606	889	630	147
8,	25	....	445	12600	1700	455	326	200	550	770	728	182
9,	19	....	618	6080	1400	425	362	234	480	1020	630	175
10,	25	....	560	4580	1100	475	398	220	430	819	540	168
11,	25	....	510	3480	942	525	490	192	384	630	470	147
12,	19	....	470	950	728	505	545	200	339	910	480	125
13,	25	....	*297	735	612	393	465	210	882	1050	393	116
14,	19	....	297	618	1020	425	430	220	1660	840	348	104
15,	28	....	297	560	6790	475	406	192	1310	770	303	86
16,	37	....	297	520	6140	540	398	200	1060	714	261	70
17,	28	....	297	480	5490	594	352	200	833	658	224	56
18,	56	....	297	3260	4570	555	316	234	606	630	175	445
19,	95	....	297	8710	3640	515	352	257	440	570	175	384
20,	86	....	297	7270	2930	490	398	220	326	520	164	352
21,	56	....	1030	5880	2030	465	370	285	269	1930	330	366
22,	40	....	1050	4580	1640	455	326	2780	242	1090	805	321
23,	32	....	950	3660	5210	465	294	2490	217	644	854	245
24,	25	....	826	2610	6660	505	281	2170	196	406	665	182
25,	20	....	735	1350	5490	475	273	2020	161	505	560	158
26,	15	....	644	1520	4570	612	253	1670	161	440	480	182
27,	17	....	618	1200	3920	525	234	1500	182	420	411	182
28,	23	....	1200	950	3370	490	217	1240	154	375	339	203
29,	23	....	1980	644	....	465	206	1130	196	316	352	182
30,	23	....	1520	495	....	475	182	990	402	330	277	182
31,	17	....	1200	366	....	425	....	805	....	303	210	....

Notes.—**Gage removed owing to reconstruction of bridge. *Creek frozen December 13 to 20, 1914, inclusive, and discharge estimated from Clarion River at Clarion. †Maximum = 14200 sec.-ft. Discharges above 9395 sec.-ft. are estimated.

ESTIMATED MONTHLY DISCHARGE OF RED BANK CREEK AT ST. CHARLES, CLARION COUNTY, PA.

(Drainage area 540 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	95	15	31	0.06	0.07
November,	....	....	....	....	....
December,	....	....	....	....	....
1915.					
January,	††12600	366	2560	4.74	5.46
February,	††14200	612	3910	7.24	7.54
March,	2850	393	661	1.22	1.41
April,	545	182	339	0.63	0.70
May,	2780	164	682	1.26	1.45
June,	1660	154	575	1.06	1.18
July,	3510	308	918	1.70	1.96
August,	1550	164	494	0.92	1.06
September,	445	56	193	0.36	0.40

Notes.—Creek frozen December 13 to 20, 1914, inclusive, and discharge estimated from Clarion River at Clarion. November 6 to December 7, 1914, gage removed owing to reconstruction of bridge. ††Estimated.

OHIO BASIN—STATION NO. 15.

ALLEGHENY RIVER AT KITTANNING, PA.

DESCRIPTION OF STATION.

LOCATION—At five span, steel, through-truss, highway bridge at Market street, Kittanning, Armstrong County.

RECORDS AVAILABLE—Discharge complete from August 18, 1904, to September 30, 1915. For other records on this river see Allegheny River at Larabee, Franklin and Freeport; also Allegheny River at Red House, N. Y., in the 1911 to 1914 reports of the Water Supply Commission.

DRAINAGE AREA—9,010 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the upstream side of the bridge and is read twice daily by S. C. Carr.

CHANNEL—Both banks are high, clean and do not overflow, and the bed is composed of gravel.

DISCHARGE MEASUREMENT OF ALLEGHENY RIVER AT KITTANNING, ARMSTRONG COUNTY, PA.

(Drainage area 9,010 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.ft.	
44	Aug. 19	Wilson & Taylor, ...	3989	4.61	8057	0.6 method.

DISCHARGE TABLE FOR ALLEGHENY RIVER AT KITTANNING, ARMSTRONG COUNTY, PA., FROM AUGUST 18, 1904.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
1.30	775	.30	10535	.30	33725	.30	63220	.30	99590
.40	880	.40	10980	.40	34400	.40	64040	.40	100600
.50	990	.50	11440	.50	35100	.50	64870	.50	101620
.60	1100	.60	11900	.60	35800	.60	65700	.60	102640
.70	1220	.70	12370	.70	36500	.70	66540	.70	103670
.80	1340	.80	12840	.80	37200	.80	67390	.80	104710
.90	1465	.90	13315	.90	37900	.90	68240	.90	105750
2.00	1605	6.00	13800	10.00	38600	14.00	69100	18.00	106800
.10	1755	.10	14285	.10	39310	.10	69970	.10	107850
.20	1920	.20	14770	.20	40020	.20	70840	.20	108910
.30	2085	.30	15260	.30	40730	.30	71720	.30	109970
.40	2260	.40	15755	.40	41440	.40	72600	.40	111040
.50	2445	.50	16250	.50	42150	.50	73490	.50	112120
.60	2640	.60	16760	.60	42860	.60	74380	.60	113200
.70	2850	.70	17290	.70	43570	.70	75270	.70	114290
.80	3060	.80	17840	.80	44280	.80	76170	.80	115390
.90	3270	.90	18410	.90	44990	.90	77080	.90	116490
3.00	3490	7.00	19000	11.00	45700	15.00	77900	19.00	117600
.10	3715	.10	19590	.10	46420	.10	78800	.10	118710
.20	3940	.20	20190	.20	47140	.20	79700	.20	119820
.30	4165	.30	20790	.30	47860	.30	80600	.30	120930
.40	4390	.40	21400	.40	48590	.40	81500	.40	122050
.50	4620	.50	22025	.50	49320	.50	82410	.50	123170
.60	4850	.60	22650	.60	50050	.60	83320	.60	124290
.70	5080	.70	23275	.70	50780	.70	84230	.70	125410
.80	5335	.80	23900	.80	51520	.80	85150	.80	126540
.90	5580	.90	24525	.90	52260	.90	86070	.90	127670
4.00	5840	8.00	25150	12.00	53000	16.00	87000	20.00	128800
.10	6105	.10	25800	.10	53750	.10	87930	21.00	140200
.20	6380	.20	26450	.20	54510	.20	88870	22.00	152000
.30	6660	.30	27100	.30	55280	.30	89810	23.00	164200
.40	6955	.40	27750	.40	56060	.40	90760	24.00	176800
.50	7260	.50	28400	.50	56840	.50	91720	25.00	189600
.60	7600	.60	29050	.60	57630	.60	92680	26.00	203000
.70	7985	.70	29700	.70	58420	.70	93650	27.00	217000
.80	8375	.80	30350	.80	59210	.80	94630	28.00	231000
.90	8775	.90	31025	.90	60000	.90	95610	29.00	245000
5.00	9200	9.00	31700	13.00	60800	17.00	96600	30.00	259000
.10	9635	.10	32375	.10	61600	.10	97590		
.20	10080	.20	33050	.20	62410	.20	98590		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF ALLEGHENY RIVER AT KITTANNING, ARMSTRONG COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.28	1.77	4.86	....	8.03	8.62	4.50	4.59	4.58	3.46	5.21	5.25
2,	1.28	1.77	4.86	....	†18.23	7.97	4.40	4.39	4.38	5.21	4.81	4.80
3,	1.28	1.82	6.71	....	15.43	7.27	4.30	4.09	4.28	5.91	6.06	4.40
4,	1.28	1.87	7.56	....	12.43	6.37	4.20	3.99	5.08	7.26	7.51	4.00
5,	1.33	1.87	6.91	....	10.73	5.87	4.10	3.99	4.88	7.51	9.91	3.75
6,	1.28	1.87	6.01	....	10.33	5.52	4.10	4.44	4.53	7.41	9.46	3.55
7,	1.28	1.87	5.26	9.79	10.03	5.52	4.25	4.99	4.18	6.76	8.56	3.50
8,	1.28	1.77	5.26	14.74	9.23	5.32	4.80	4.89	3.88	6.06	7.41	3.35
9,	1.28	1.97	5.46	12.74	8.28	5.12	5.85	6.14	3.83	7.01	6.31	3.20
10,	1.28	2.12	5.51	11.04	7.33	4.92	6.10	6.79	3.63	9.96	6.91	3.30
11,	1.38	2.57	5.41	9.59	6.73	4.92	6.55	6.14	3.48	9.16	6.81	3.25
12,	1.48	2.82	5.16	8.89	6.78	4.87	7.30	5.44	3.23	8.41	5.91	3.10
13,	1.53	2.87	4.96	7.94	8.68	4.82	8.10	4.89	3.18	9.31	5.36	2.96
14,	1.78	2.77	4.61	6.94	10.53	4.57	7.90	4.54	3.73	9.11	5.26	2.86
15,	1.93	2.67	3.66	6.24	12.73	4.52	7.10	4.29	4.28	7.86	5.01	2.80
16,	2.08	3.02	2.96	6.34	14.83	4.72	6.40	4.09	4.33	6.66	5.11	2.90
17,	2.08	3.17	2.76	5.59	13.73	4.92	5.90	3.99	4.58	6.21	5.41	2.80
18,	2.18	3.62	3.26	6.94	12.23	4.97	5.45	4.14	4.43	8.31	4.96	2.90
19,	2.23	4.12	3.46	10.74	10.38	4.82	5.15	4.74	3.98	7.16	4.44	3.70
20,	2.33	4.02	4.16	11.69	9.18	4.62	4.90	4.64	3.73	6.31	4.25	4.55
21,	2.48	3.72	4.71	10.69	8.08	4.52	4.65	4.64	3.48	5.76	3.95	4.70
22,	2.83	3.47	*	9.29	7.48	4.32	4.45	5.94	3.38	6.21	4.30	4.05
23,	2.78	3.17	....	8.14	7.33	4.32	4.25	9.29	3.08	5.81	6.45	3.90
24,	2.48	2.97	....	7.29	7.88	4.37	4.15	8.54	3.08	5.11	7.30	3.60
25,	2.23	2.97	....	6.69	11.43	4.42	4.00	7.89	3.08	4.51	6.85	3.35
26,	2.03	3.02	....	6.34	12.73	4.62	3.90	7.24	3.18	4.31	5.95	3.20
27,	1.88	3.17	....	6.04	11.43	5.07	3.90	6.54	2.93	4.01	5.55	3.20
28,	1.83	3.47	....	5.59	9.83	5.22	3.80	5.94	2.78	4.01	5.50	3.50
29,	1.78	5.17	....	5.09	....	5.12	4.95	5.54	2.53	4.41	5.05	4.50
30,	1.73	5.47	....	4.19	....	4.87	5.00	5.29	2.93	4.36	5.00	4.30
31,	1.68	....	....	3.94	....	4.67	....	4.94	....	4.91	5.20	....

Notes.—*River frozen December 22, 1914, to January 6, 1915, inclusive. †Maximum 19.20 ft. at noon from hydrograph.

DAILY DISCHARGE, IN SECOND-FEET, OF ALLEGHENY RIVER AT KITTANNING, ARMSTRONG COUNTY PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	754	1300	8620	7660	25300	29200	7260	7570	7530	4530	10100	10300
2,	754	1300	8620	7660	†109000	25000	6960	6930	6750	10100	8420	8380
3,	754	1360	17300	7660	81800	20600	6660	6080	6600	13400	14100	6960
4,	754	1430	22400	7660	56300	15600	6380	5810	9330	20600	22100	5840
5,	806	1430	18500	7660	43800	13200	6100	5810	8700	22100	38000	5200
6,	754	1430	13800	7660	40900	11500	6100	7080	7360	21500	34800	4740
7,	754	1430	10400	37100	38800	11500	6520	9160	6820	17600	28800	4620
8,	754	1300	10400	75600	33300	10600	8380	8740	5530	14100	21500	4280
9,	754	1560	11300	58700	27000	9720	13100	14500	5410	19100	15300	3940
10,	754	1790	11500	46000	21000	8860	14300	17800	4920	38300	18500	4160
11,	859	2580	11000	35700	17500	8860	16500	14500	4570	32800	17900	4050
12,	968	3100	9900	31000	17700	8660	20800	11200	4010	27800	13400	3720
13,	1020	3210	9030	24800	29600	8460	25800	8740	3900	33800	10800	3270
14,	1320	3000	7640	18600	42400	7500	24500	7400	5150	32400	10400	3060
15,	1510	2790	4990	15000	58700	7330	19600	6630	6600	24300	9240	3060
16,	1720	3540	3400	15500	76400	8060	15800	6080	6750	17100	9680	3270
17,	1720	3870	2980	11900	66800	8860	13300	5810	7530	14800	11000	3060
18,	1890	4900	4080	18600	54700	9070	11200	6220	7050	27200	9080	3270
19,	1970	6160	4530	43900	41300	8460	9860	8140	5790	20000	7080	5080
20,	2140	5890	6270	50700	32900	7680	8780	7750	5150	15300	6520	7430
21,	2410	5130	8020	43500	25700	7330	7790	7750	4570	12700	5710	7980
22,	3120	4550	*4960	33700	21900	6720	7110	13600	4340	14800	6660	5970
23,	3020	3870	4960	26100	21000	6720	6520	33700	3670	12900	16000	5580
24,	2410	3420	4960	20700	24400	6870	6240	28700	3670	9680	20800	4850
25,	1970	3420	4960	17200	48800	7020	5840	24500	3670	7290	18100	4280
26,	1650	3540	4960	15500	58700	7680	5580	20400	3900	6690	13600	3940
27,	1440	3870	4960	14000	48800	9500	5580	16500	3340	5870	11700	3940
28,	1380	4550	4960	11900	37400	10200	5340	13500	3020	5870	11400	4620
29,	1320	9950	4960	9590	....	9720	8990	11600	2500	6990	9420	7260
30,	1260	11300	4960	6350	....	8660	9200	10500	3340	6840	9200	6660
31,	1200	....	7660	5680	....	7870	....	8940	....	8820	10100	....

Notes.—*River frozen December 22, 1914, to January 6, 1915, inclusive, and discharge estimated from climatological records. †Maximum = 120000 sec.-ft.

ESTIMATED MONTHLY DISCHARGE OF ALLEGHENY RIVER AT KITTANNING, ARMSTRONG COUNTY, PA.

(Drainage area 9,010 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	3120	754	1420	0.16	0.18
November,	11300	1300	3570	0.40	0.45
December,	22400	2980	8290	0.92	1.06
1915.					
January,	75600	5680	23700	2.63	3.03
February,	120000	17500	42900	4.76	4.96
March,	29200	6720	10500	1.16	1.34
April,	25800	5340	10500	1.16	1.29
May,	33700	6810	11700	1.30	1.50
June,	9330	2500	5870	0.60	0.67
July,	38300	4530	16900	1.88	2.17
August,	38000	5710	14500	1.61	1.86
September,	10300	3060	5090	0.56	0.62
The year,	120000	754	12900	1.18	19.13

Note.—River frozen December 22, 1914, to January 6, 1915, inclusive, and discharge estimated from climatological records.

OHIO BASIN—STATION NO. 16.

CROOKED CREEK AT HILEMAN'S FARM, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge, about 3 miles above the mouth, near Ford City, Armstrong County.

RECORDS AVAILABLE—Discharge complete from October 16, 1909, to September 30, 1915.

DRAINAGE AREA—279 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the upstream side of the bridge and is read twice daily by J. T. Hileman.

CHANNEL—Both banks are high and not subject to overflow, and the bed is composed of rock, the section being deep and the current sluggish.

DISCHARGE MEASUREMENTS OF CROOKED CREEK AT HILEMAN'S FARM, ARMSTRONG COUNTY, PA.

(Drainage area 279 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
			Sq. ft.	Feet.	Sec.ft.	
17	1914. Dec. 7	Taylor & Gough, ...	277	1.60	63	0.6 method.
18	1915. Aug. 18	Wilson & Taylor, ...	190	1.60	39	Wading 600 ft. below bridge.

DISCHARGE TABLE FOR CROOKED CREEK AT HILEMAN'S FARM, ARMSTRONG COUNTY, PA., FROM OCTOBER 16, 1909.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
0.50	2	.60	359	.70	2180	.80	4770	.90	8700
.60	2	.70	403	.80	2300	.90	4920	9.00	8900
.70	2	.80	451	.90	2420	7.00	5070	.10	9100
.80	3	.90	500	5.00	2530	.10	5230	.20	9300
.90	5	3.00	555	.10	2640	.20	5390	.30	9500
1.00	7	.10	620	.20	2750	.30	5560	.40	9700
.10	11	.20	690	.30	2860	.40	5730	.50	9900
.20	18	.30	770	.40	2980	.50	5910	.60	10100
.30	26	.40	850	.50	3090	.60	6100	.70	10300
.40	36	.50	940	.60	3200	.70	6300	.80	10500
.50	48	.60	1030	.70	3320	.80	6500	.90	10700
.60	61	.70	1120	.80	3440	.90	6700	10.00	10900
.70	77	.80	1220	.90	3560	8.00	6900	.10	11100
.80	97	.90	1320	6.00	3680	.10	7100	.20	11300
.90	120	4.00	1420	.10	3810	.20	7300	.30	11500
2.00	145	.10	1520	.20	3940	.30	7500	.40	11700
.10	174	.20	1630	.30	4070	.40	7700	.50	11900
.20	205	.30	1740	.40	4200	.50	7900	.60	12100
.30	240	.40	1850	.50	4340	.60	8100		
.40	278	.50	1960	.60	4480	.70	8300		
.50	318	.60	2070	.70	4620	.80	8500		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF CROOKED CREEK AT HILEMAN'S FARM, ARMSTRONG COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.21	0.82	1.72	3.07	4.01	2.30	2.87	1.50	2.82	2.70	2.52	1.20
2,	1.16	0.87	2.77	3.87	9.61	2.25	2.87	1.55	3.12	2.80	3.57	1.25
3,	1.26	0.72	3.32	3.47	7.16	2.20	2.82	1.55	3.37	4.70	5.82	1.35
4,	1.36	0.92	3.22	3.82	4.51	2.20	2.77	1.45	3.17	4.50	4.52	1.40
5,	1.36	0.77	3.27	4.22	4.01	2.25	2.77	1.60	3.12	4.25	3.07	1.45
6,	1.26	0.82	2.27	4.37	3.81	2.25	2.22	1.60	2.87	3.35	2.92	1.50
7,	1.16	0.87	‖2.32	7.67	3.66	2.45	1.67	1.55	2.62	3.35	2.72	1.45
8,	1.46	1.07	2.37	6.07	3.16	2.60	1.57	1.40	2.27	3.20	2.67	1.35
9,	1.66	1.17	2.17	4.02	2.86	2.60	1.52	1.40	2.72	2.95	2.52	1.30
10,	2.31	1.02	2.47	3.47	2.71	2.45	1.52	1.55	2.92	2.70	2.42	1.25
11,	1.96	0.82	2.17	2.87	2.41	2.40	1.87	1.60	3.22	2.75	2.22	1.55
12,	1.36	0.92	2.07	2.67	2.61	2.30	1.82	1.55	3.52	2.95	1.97	1.50
13,	1.06	0.87	1.57	2.57	2.81	2.25	1.77	1.40	2.52	3.25	1.77	1.65
14,	1.46	1.17	1.52	2.27	3.61	2.20	1.72	1.35	2.27	2.90	1.57	1.75
15,	1.81	1.52	1.37	2.22	3.66	2.20	1.57	1.30	2.37	2.75	1.72	1.70
16,	2.16	1.72	1.22	2.07	3.56	2.30	1.52	1.25	2.17	3.35	1.62	1.50
17,	1.86	1.47	1.62	2.27	3.26	2.30	1.42	1.35	2.22	3.10	1.52	1.35
18,	1.66	1.37	1.67	4.12	2.91	2.35	1.32	1.40	2.17	3.40	1.49	1.85
19,	1.16	1.22	1.42	6.57	2.71	2.30	1.27	1.55	1.97	3.50	1.45	3.40
20,	0.91	1.17	2.27	4.57	2.51	2.15	1.32	1.65	2.07	3.10	1.50	3.25
21,	0.86	1.27	3.22	3.62	2.46	2.10	1.42	1.70	2.22	2.85	1.55	2.95
22,	1.01	1.37	5.37	3.07	2.51	2.10	1.47	1.85	2.07	2.75	1.60	2.65
23,	0.86	1.37	3.32	3.52	2.46	2.20	1.57	2.15	1.97	2.55	1.55	2.35
24,	0.86	1.27	3.07	3.02	2.31	2.25	1.52	2.40	2.82	2.45	1.45	2.25
25,	0.81	1.27	2.87	2.82	2.46	2.30	1.37	2.70	2.07	2.55	1.35	2.05
26,	0.76	1.17	2.72	2.67	2.61	2.15	1.37	2.80	2.02	2.65	1.50	3.45
27,	0.91	1.17	2.57	2.57	2.46	2.15	1.27	3.05	1.87	2.50	1.55	3.15
28,	0.71	1.07	2.87	2.52	2.36	2.55	1.37	3.25	1.72	2.35	1.40	3.00
29,	0.86	1.17	3.37	2.47	....	2.85	1.37	3.40	1.57	2.50	1.30	2.85
30,	0.86	1.47	3.47	2.37	....	2.85	1.47	3.05	1.67	2.05	1.25	2.60
31,	0.86	....	3.27	2.27	....	2.90	....	2.75	....	1.75	1.25	....

Note.—‖Interpolated.

DAILY DISCHARGE, IN SECOND-FEET, OF CROOKED CREEK AT HILEMAN'S FARM, ARMSTRONG COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	19	3	81	600	1430	240	485	48	461	403	326	18
2,	15	4	437	485	10100	222	485	54	634	451	1000	22
3,	23	2	786	913	5330	205	461	54	826	2180	3460	31
4,	32	5	706	1240	1970	205	437	42	669	1960	1980	36
5,	32	3	746	1650	1430	222	437	61	634	1680	600	42
6,	23	3	230	1820	1230	222	212	61	485	810	511	48
7,	15	4	248	6240	1080	298	72	54	368	810	413	42
8,	43	10	267	3770	662	359	57	36	230	690	390	31
9,	71	16	196	1440	480	359	51	36	413	528	326	26
10,	244	8	306	913	408	298	51	54	511	403	286	22
11,	135	3	196	485	282	278	113	61	706	427	212	54
12,	32	5	165	390	363	240	102	54	958	528	138	48
13,	9	4	57	347	456	222	91	36	326	730	91	69
14,	43	16	51	230	1040	205	81	31	230	500	57	87
15,	99	51	33	212	1080	205	57	26	267	427	81	77
16,	193	81	20	165	994	240	51	22	196	810	64	48
17,	111	44	64	230	738	240	38	31	212	620	51	31
18,	71	33	72	1540	506	259	28	36	196	850	47	109
19,	15	20	38	4440	408	240	24	54	138	940	42	850
20,	5	16	230	2040	322	190	28	69	165	620	48	730
21,	4	24	706	1050	302	174	38	77	212	476	54	528
22,	7	33	2940	600	322	174	44	108	165	403	61	381
23,	4	33	786	958	302	205	57	190	138	338	54	259
24,	4	24	600	568	244	222	51	278	461	298	42	222
25,	3	24	485	461	302	240	33	403	165	338	31	160
26,	3	16	413	390	363	190	33	451	151	381	48	895
27,	5	16	347	347	302	190	24	588	113	318	54	655
28,	2	10	485	326	263	338	33	730	81	259	36	555
29,	4	16	826	306	....	476	33	850	57	318	26	476
30,	4	44	913	267	....	476	44	588	72	160	22	359
31,	4	....	746	230	....	500	....	427	....	87	22	....

ESTIMATED MONTHLY DISCHARGE OF CROOKED CREEK AT HILEMAN'S FARM, ARMSTRONG COUNTY, PA.

(Drainage area 279 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	244	2	41	0.15	0.17
November,	81	2	19	0.07	0.08
December,	2940	20	457	1.64	1.89
1915.					
January,	6240	165	1120	4.01	4.62
February,	10100	244	1170	4.19	4.36
March,	500	174	262	0.94	1.08
April,	485	24	125	0.45	0.50
May,	850	22	181	0.65	0.75
June,	958	57	341	1.22	1.36
July,	2180	87	637	2.28	2.63
August,	3460	22	341	1.22	1.41
September,	896	18	230	0.82	0.92
The year,	10100	2	410	1.47	19.77

OHIO BASIN—STATION NO. 17.

STONY CREEK AT JOHNSTOWN, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge at Poplar Street, Johnstown.

RECORDS AVAILABLE—Discharge complete January 1, 1914, to September 30, 1915.

DRAINAGE AREA—465 square miles.

GAGE—A vertical chain gage, whose elevation of zero is 1,154.0 feet above mean sea level, is located on the downstream side of the bridge, and is read twice daily by L. C. Reitz.

CHANNEL—Both banks are high and not subject to overflow, and the bed is stony.

DISCHARGE MEASUREMENTS OF STONY CREEK AT JOHNSTOWN, CAMBRIA COUNTY, PA.

(Drainage area 465 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1914.		Sq. ft.	Feet.	Sec. ft.	
4	Dec. 11	Taylor,	98	1.27	96	Surface msmt.
	1915.					
5	Feb. 2	Taylor,	1801	9.25	7904	Surface msmt.
6	Feb. 2	Taylor,	1760	9.12	7811	Surface msmt.
7	Feb. 2	Taylor,	1715	8.96	7763	Surface msmt.
8	Feb. 2	Taylor,	1648	8.65	7113	Surface msmt.
9	Feb. 2	Taylor,	1625	8.57	7075	Surface msmt.
10	Feb. 2	Taylor,	1603	8.44	7005	Surface msmt.
11	Feb. 2	Taylor,	1559	8.27	6409	Surface msmt.
12	Feb. 3	Taylor,	1208	6.70	4310	Surface msmt.
13	Feb. 3	Taylor,	1187	6.58	4207	Surface msmt.
14	Feb. 3	Taylor,	1122	6.30	3837	Surface msmt.
15	Feb. 3	Taylor,	1136	6.22	3748	Surface msmt.
16	Feb. 3	Taylor,	1096	6.11	3657	Surface msmt.
17	Feb. 4	Taylor,	903	5.22	2775	Surface msmt.
18	Feb. 4	Taylor,	882	5.18	2637	Surface msmt.
19	Feb. 4	Taylor,	862	5.10	2615	Surface msmt.
20	Feb. 4	Taylor,	838	5.07	2547	Surface msmt.
21	Feb. 4	Taylor,	858	5.04	2603	Surface msmt.
22	Feb. 4	Taylor,	887	5.00	2575	0.6 method.
23	Feb. 5	Taylor,	845	4.62	2310	0.6 method.
24	Feb. 5	Taylor,	825	4.56	2199	0.6 method.
25	Feb. 5	Taylor,	825	4.52	2197	0.6 method.
26	Feb. 5	Taylor,	735	4.53	2014	Surface msmt.
27	Feb. 6	Taylor,	766	4.34	1943	0.6 method.
28	Feb. 8	Taylor,	588	3.78	1387	0.6 method. Slush ice running.
29	Feb. 9	Taylor,	506	3.36	1106	0.6 method. Ice running.
30	Feb. 10	Taylor,	467	3.16	1019	0.6 method.
31	Feb. 11	Taylor,	448	3.02	925	0.6 method. Floating ice.
32	Aug. 16	Wilson & Taylor,	114	1.30	147	0.6 method.

DISCHARGE TABLE FOR STONY CREEK AT JOHNSTOWN, CAMBRIA COUNTY, PA., FROM JANUARY 1, 1914.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
0.80	20	.70	725	.60	2160	.50	4070	.40	6700
.90	35	.80	780	.70	2250	.60	4190	.50	6860
1.00	50	.90	840	.80	2340	.70	4310	.60	7020
.10	70	3.00	900	.90	2430	.80	4430	.70	7180
.20	95	.10	965	5.00	2530	.90	4550	.80	7340
.30	120	.20	1030	.10	2630	7.00	4670	.90	7500
.40	150	.30	1095	.20	2730	.10	4800	9.00	7660
.50	185	.40	1165	.30	2830	.20	4930	.10	7830
.60	220	.50	1235	.40	2930	.30	5060	.20	8000
.70	260	.60	1310	.50	3030	.40	5190	.30	8170
.80	300	.70	1390	.60	3130	.50	5330	.40	8340
.90	345	.80	1470	.70	3230	.60	5470	.50	8510
2.00	390	.90	1550	.80	3330	.70	5620	.60	8680
.10	435	4.00	1630	.90	3435	.80	5770	.70	8850
.20	480	.10	1710	6.00	3540	.90	5920	.80	9020
.30	525	.20	1800	.10	3645	8.00	6070	.90	9190
.40	575	.30	1890	.20	3750	.10	6220	10.00	9360
.50	625	.40	1980	.30	3855	.20	6380		
.60	675	.50	2070	.40	3960	.30	6540		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF STONY CREEK AT JOHNSTOWN, CAMBRIA COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	*	‖5.40	....	5.71	3.21	1.47	2.17	1.05	0.97
2,	....	4.80	....	7.02	2.92	1.37	2.22	‖1.08	0.94
3,	....	4.18	....	6.12	‖2.68	1.22	1.92	1.10	0.94
4,	‖1.74	3.95	....	5.41	2.44	1.17	‖1.98	1.10	0.94
5,	1.79	3.80	....	‖4.61	2.51	2.97	‖2.03	1.10	0.94
6,	1.69	3.35	....	3.81	5.83	2.12	2.09	1.10	0.93
7,	1.69	3.10	....	3.52	4.11	‖1.83	1.86	1.10	0.92
8,	1.79	‖2.84	....	3.46	3.45	1.54	1.61	1.10	0.89
9,	2.09	*	....	4.01	3.63	1.42	1.53	‖1.10	0.89
10,	3.09	....	....	3.31	‖3.28	1.72	1.48	1.10	0.89
11,	‖3.05	....	....	3.63	2.93	1.70	1.44	1.08	0.89
12,	3.01	....	....	‖3.32	2.80	1.52	‖1.63	1.28	0.89
13,	*	....	....	3.01	2.91	1.34	1.83	1.35	‖0.89
14,	....	....	....	2.79	2.76	1.26	1.91	1.25	0.89
15,	....	....	....	5.55	2.43	1.17	2.11	1.22	0.88
16,	....	....	5.72	‡7.13	2.31	1.12	2.21	‖1.12	0.88
17,	2.39	....	7.30	5.41	‖2.18	0.97	1.83	1.02	0.88
18,	‖2.29	....	6.93	4.59	2.06	0.92	1.53	1.02	0.88
19,	2.19	....	6.32	‖4.45	2.01	0.92	‖1.45	1.00	0.87
20,	2.29	....	4.95	4.31	1.91	0.91	1.36	1.00	‖0.87
21,	5.19	....	4.20	5.11	1.83	0.96	1.16	1.00	0.87
22,	3.87	....	‖4.11	4.23	1.76	1.02	1.13	1.00	0.87
23,	3.89	....	4.02	4.76	1.71	1.42	1.11	1.01	0.87
24,	4.29	....	3.10	3.41	1.65	1.12	1.16	1.02	0.87
25,	4.14	....	3.80	4.89	1.59	5.32	1.21	1.00	0.87
26,	3.99	....	5.82	††5.51	1.51	3.12	‖1.23	1.00	0.87
27,	3.61	....	6.80	5.73	1.51	2.97	1.26	1.00	‖0.87
28,	4.09	....	7.10	4.51	1.96	††4.52	1.21	0.98	0.87
29,	6.41	....	‖6.98	4.83	1.86	4.02	1.06	1.00	0.87
30,	6.79	....	†6.87	3.51	‖1.73	2.87	1.01	‖1.00	0.87
31,	5.99	....	6.78	....	‖1.60	....	0.95	1.00	....

Notes.—*Creek frozen January 1 to 3, January 13 to 16, and February 9 to March 16, 1914, inclusive. †Maximum 7.85 ft. at 6 P. M. ‡Maximum 7.51 ft. at 6 P. M. ‖Interpolated. ††Estimated.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF STONY CREEK AT JOHNSTOWN, CAMBRIA COUNTY, PA.. FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.89	‖0.95	1.03	2.29	4.59	3.36	1.89	1.61	3.33	2.05	1.25	1.30
2,	0.89	0.96	1.06	2.14	†8.78	2.53	1.79	1.50	3.97	1.78	1.58	1.20
3,	0.91	0.96	1.11	‖2.08	6.45	2.46	1.77	1.41	§7.75	1.81	2.35	1.18
4,	0.92	0.94	1.11	1.92	5.10	2.26	1.72	1.76	6.67	1.65	2.63	1.10
5,	0.93	0.99	1.09	1.89	4.59	2.23	1.68	2.08	5.00	1.58	2.68	1.05
6,	0.93	0.99	‖1.10	2.04	4.31	2.10	1.75	1.91	4.13	1.65	2.13	1.05
7,	0.93	0.96	1.11	9.69	4.08	2.13	1.92	1.76	3.55	1.41	1.83	1.02
8,	0.93	‖0.97	1.21	5.49	3.76	2.03	2.07	1.64	3.13	1.34	1.61	1.15
9,	1.01	0.99	1.36	3.94	3.42	1.96	1.97	1.58	2.73	1.33	1.85	1.08
10,	1.01	0.96	1.36	‖3.31	3.25	1.96	1.98	1.48	2.47	1.31	1.58	1.10
11,	‖1.01	0.93	1.28	2.69	3.05	2.10	1.99	1.46	2.23	1.48	1.43	1.08
12,	1.02	0.93	1.31	2.64	4.49	1.98	2.17	1.41	2.13	2.23	1.48	1.22
13,	1.00	0.93	‖1.29	2.59	5.68	1.96	2.25	1.47	2.13	1.85	1.45	1.15
14,	1.01	0.93	1.26	2.29	6.79	2.13	2.07	1.46	2.40	1.58	1.25	1.05
15,	1.11	‖1.03	1.21	2.34	9.09	2.66	1.93	1.38	2.15	1.43	1.31	0.98
16,	1.16	1.14	1.21	2.59	7.09	2.88	1.79	1.48	1.87	1.43	1.28	1.00
17,	1.26	1.13	1.26	‖3.34	5.51	2.70	1.75	1.68	1.73	1.42	1.22	1.20
18,	‖1.17	1.11	1.31	4.09	4.59	2.33	1.67	1.74	1.65	1.35	1.18	1.12
19,	1.07	1.09	1.31	7.89	3.74	2.30	1.72	1.56	1.57	1.23	1.12	1.25
20,	1.01	1.06	‖1.51	6.79	3.55	3.18	1.87	1.46	1.53	1.19	1.10	1.28
21,	1.01	1.04	1.71	4.09	4.04	2.16	1.69	‡4.11	1.47	1.45	1.08	1.32
22,	0.99	‖1.04	1.81	3.59	3.97	2.08	1.65	5.81	1.40	1.35	1.53	1.28
23,	0.96	1.04	1.61	2.99	4.14	2.00	1.62	5.74	1.36	1.21	1.48	1.22
24,	0.96	1.01	1.41	‖3.41	5.25	2.06	1.35	4.98	1.37	1.18	1.35	1.18
25,	‖0.93	0.96	‖1.41	3.84	5.51	2.06	1.65	4.42	1.33	1.33	1.20	1.10
26,	0.91	‖0.95	1.41	2.59	4.59	2.68	1.55	3.71	1.30	1.15	1.10	1.05
27,	0.91	0.94	‖1.56	2.39	4.09	2.86	1.49	3.16	1.26	1.15	1.08	1.02
28,	0.91	0.94	1.71	2.29	3.61	2.16	1.49	2.78	1.23	1.13	1.12	1.10
29,	0.93	‖0.97	1.76	2.09	....	3.16	1.72	2.81	1.20	1.21	1.20	1.08
30,	0.96	1.01	1.81	1.99	....	2.06	1.62	4.14	1.43	1.58	1.68	1.18
31,	0.94	....	2.06	‖3.29	....	2.00	....	4.00	....	1.53	1.45	....

Notes.—‖Interpolated. †Maximum 9.40 ft. at 7 A. M. ‡Maximum 6.80 ft. at 6 P. M. §Maximum 8.50 ft. at 6 P. M.

DAILY DISCHARGE, IN SECOND-FEET, OF STONY CREEK AT JOHNSTOWN, CAMBRIA COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	*170	2930	190	3240	1040	174	466	66	45
2,	170	2340	190	4700	852	141	489	66	41
3,	170	1780	190	3670	715	100	354	70	41
4,	276	1590	190	2940	595	88	381	70	41
5,	296	1470	190	2170	630	882	404	70	41
6,	256	1130	190	1480	3360	444	430	70	40
7,	256	965	190	1250	1720	314	327	70	38
8,	296	804	190	1210	1200	199	224	70	34
9,	430	*120	190	1640	1330	157	196	70	34
10,	958	120	190	1100	1080	268	178	70	34
11,	932	120	190	1330	858	260	164	66	34
12,	906	120	190	1110	780	192	232	115	34
13,	*430	120	190	906	846	132	314	135	34
14,	530	120	190	774	758	110	350	108	34
15,	630	120	190	3080	590	88	440	100	32
16,	575	120	190	‡4840	530	75	484	75	32
17,	570	120	5060	2940	471	46	314	54	32
18,	520	120	4590	2150	417	38	196	54	32
19,	476	260	3880	2020	394	38	168	50	30
20,	520	260	2480	1900	350	36	138	50	30
21,	2720	260	1800	2640	314	44	85	50	30
22,	1530	260	1720	1830	284	54	78	50	30
23,	1540	260	1650	2300	264	157	72	52	30
24,	1880	260	965	1170	240	75	85	54	30
25,	1750	260	1470	2420	216	2850	98	50	30
26,	1620	260	3350	3040	188	978	102	50	30
27,	1320	260	4430	3260	188	882	110	50	30
28,	1700	260	4800	2080	372	2090	98	47	30
29,	3970	....	4650	2370	327	1650	62	50	30
30,	4420	....	†4510	1240	272	822	52	50	30
31,	3530	....	4410	....	220	....	42	50	....

Notes.—*Creek frozen January 1 to 3, January 13 to 16 and February 9 to March 16, 1914, inclusive, and discharge estimated from climatological records. †Maximum=5840 sec.-ft. ‡Maximum=5340 sec ft.

DAILY DISCHARGE, IN SECOND FEET, OF STONY CREEK AT JOHNSTOWN, CAMBRIA COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	34	42	56	520	2150	1140	340	224	1120	412	108	120
2,	34	44	62	453	†7810	640	296	185	1610	292	213	95
3,	36	44	72	404	4020	605	288	154	§5700	304	550	90
4,	38	41	72	354	2630	507	268	284	4270	240	690	70
5,	40	48	68	340	2150	494	252	426	2530	213	690	60
6,	40	48	70	408	1900	435	280	350	1740	240	448	60
7,	40	44	72	8830	1650	449	354	284	1270	154	314	54
8,	40	46	98	3020	1440	404	422	236	984	132	224	82
9,	52	48	138	1580	1180	372	376	213	742	129	322	66
10,	52	44	138	1100	1060	372	381	178	610	123	213	70
11,	52	40	115	720	932	435	336	171	494	178	160	66
12,	54	40	123	695	2060	381	466	154	449	494	178	100
13,	50	40	118	670	3160	372	502	174	449	322	168	82
14,	52	40	110	520	4420	449	422	171	575	196	108	60
15,	72	56	98	545	7810	705	354	144	458	160	123	47
16,	85	80	98	670	4790	828	296	178	332	160	115	50
17,	110	78	110	1120	3040	725	280	252	272	157	100	95
18,	88	72	123	1700	2150	540	248	276	240	135	90	75
19,	64	68	123	5900	1420	525	268	206	210	102	75	108
20,	52	62	188	4420	1270	471	332	171	196	92	70	115
21,	52	58	264	1700	1660	462	256	‡1720	174	168	66	126
22,	48	58	304	1300	1610	426	240	3340	150	135	192	115
23,	44	58	224	894	1750	390	228	3270	138	98	178	100
24,	44	52	154	1170	2780	417	322	2510	141	90	135	90
25,	40	44	154	1500	3040	417	240	2000	129	129	95	70
26,	36	42	154	670	2150	715	202	1400	120	82	70	60
27,	36	41	206	570	1700	816	182	1000	110	82	66	54
28,	38	41	264	520	1480	462	182	769	102	78	75	70
29,	40	46	284	430	....	462	268	786	95	98	95	66
30,	44	52	304	386	....	417	228	1750	160	213	252	90
31,	41	....	417	1090	....	390	....	1630	....	196	168	....

Notes.—†Maximum=8340 sec.-ft. ‡Maximum=3860 sec.-ft. §Maximum=6860 sec.-ft.

ESTIMATED MONTHLY DISCHARGE OF STONY CREEK AT JOHNSTOWN, CAMBRIA COUNTY, PA.

(Drainage area 465 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
a1914.					
January,	4420	....	1140	2.45	2.82
February,	2930	....	591	1.27	1.32
March,	5840	....	1700	3.66	4.22
April,	5340	774	2230	4.80	5.36
May,	3360	188	690	1.48	1.71
June,	2850	36	446	0.96	1.07
July,	489	42	230	0.49	0.56
August,	135	47	66	0.14	0.16
September,	45	30	34	0.07	0.08
1914.					
October,	110	34	50	0.11	0.13
November,	80	40	51	0.11	0.12
December,	417	56	154	0.33	0.38
1915.					
January,	8830	340	1430	3.08	3.55
February,	8340	932	2600	5.59	5.82
March,	1140	372	523	1.12	1.29
April,	502	182	305	0.66	0.74
May,	3860	144	794	1.71	1.97
June,	6860	95	852	1.83	2.04
July,	494	78	181	0.39	0.45
August,	690	66	205	0.44	0.51
September,	128	47	80	0.17	0.19
The year,	8830	34	602	1.30	17.19

Note.—a Creek frozen January 1 to 3, January 13 to 16 and February 9 to March 16, 1914, inclusive, and discharge estimated from climatological records.

OHIO BASIN—STATION NO. 18.

BLACK LICK CREEK AT BLACK LICK, PA.

DESCRIPTION OF STATION.

LOCATION—At 3 span, steel, through-truss, highway bridge, ¼ mile from railroad station at Black Lick, Indiana County.

RECORDS AVAILABLE—Discharge complete from August 16, 1904, to December 31, 1905, and from January 8, 1907, to September 30, 1915.

DRAINAGE AREA—386 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the upstream side of the bridge and is read twice daily by Mrs. D. J. Walling.

CHANNEL—The right bank is not subject to overflow, while the left bank overflows at gage height 11.5 feet, and the bed is composed of gravel, sand and boulders.

DISCHARGE MEASUREMENT OF BLACK LICK CREEK, AT BLACK LICK, INDIANA COUNTY, PA.

(Drainage area 386 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec. ft.	
31	Aug. 16	Wilson & Taylor, ...	357	2.58	139	0.6 method.

DISCHARGE TABLE FOR BLACK LICK CREEK AT BLACK LICK, INDIANA COUNTY, PA., FROM JANUARY 1, 1913.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
1.70	0	4.00	965	.30	4060	.60	8880	.90	14640
.80	3	.10	1050	.40	4255	.70	9100	11.00	14920
.90	8	.20	1140	.50	4455	.80	9320	.10	15210
2.00	16	.30	1230	.60	4655	.90	9540	.20	15500
.10	28	.40	1320	.70	4855	9.00	9760	.30	15795
.20	44	.50	1420	.80	5060	.10	9990	.40	16090
.30	64	.60	1520	.90	5270	.20	10220	.50	16390
.40	90	.70	1620	7.00	5480	.30	10460	.60	16690
.50	120	.80	1730	.10	5690	.40	10700	.70	16995
.60	153	.90	1845	.20	5900	.50	10950	.80	17300
.70	192	5.00	1960	.30	6110	.60	11200	.90	17610
.80	232	.10	2090	.40	6320	.70	11450	12.00	17920
.90	274	.20	2230	.50	6530	.80	11700	.10	18235
3.00	318	.30	2375	.60	6740	.90	11950	.20	18550
.10	365	.40	2525	.70	6950	10.00	12200	.30	18895
.20	415	.50	2680	.80	7160	.10	12460	.40	19240
.30	470	.60	2840	.90	7370	.20	12720	.50	19585
.40	525	.70	3000	8.00	7580	.30	12985	.60	19930
.50	590	.80	3165	.10	7790	.40	13250	.70	20285
.60	660	.90	3335	.20	8000	.50	13525	.80	20640
.70	730	6.00	3510	.30	8220	.60	13800	.90	21020
.80	805	.10	3690	.40	8440	.70	14080	13.00	21400
.90	885	.20	3875	.50	8660	.80	14360		

Note.—This table is only applicable subsequent to January 1, 1913, and is based on 4 discharge measurements made during 1913-14-15, together with the former curve, and has only been changed below gage height 3.10 feet.

NOTE—Due to change in rating table, the daily discharge from January 1, 1913, to September 30, 1914, has been revised and republished in this report.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF BLACK LICK CREEK AT BLACK LICK, INDIANA COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1913.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	3.48	3.48	2.68	4.50	3.81	4.90	4.00	3.63	4.02	2.50	2.26	2.08
2,	3.26	3.44	2.82	4.03	3.38	4.56	3.74	3.37	3.72	2.46	2.22	2.05
3,	3.16	3.28	3.53	6.21	3.48	4.20	3.66	3.23	3.45	2.42	2.17	2.07
4,	3.06	3.14	3.18	6.14	3.40	3.95	3.50	3.12	3.29	2.38	2.14	2.03
5,	2.96	3.04	3.04	5.85	3.17	4.16	3.40	3.05	3.15	2.50	2.12	2.01
6,	2.87	2.98	4.98	5.53	3.23	3.87	3.29	2.97	3.05	2.52	2.08	2.03
7,	2.78	3.58	4.88	7.51	3.22	3.32	3.20	3.01	2.97	2.42	3.49	2.09
8,	2.69	4.14	4.11	‡9.81	3.24	3.36	3.10	2.88	2.98	2.34	3.30	2.30
9,	3.16	3.69	3.72	6.68	3.18	3.61	3.02	2.80	2.83	2.36	2.96	2.27
10,	3.24	3.60	3.44	5.32	3.07	3.86	2.97	2.75	2.69	2.41	2.57	2.17
11,	2.92	3.53	3.68	7.35	3.08	4.44	3.06	2.70	2.58	2.48	2.50	2.13
12,	2.80	3.46	3.83	8.78	3.10	4.24	3.41	2.67	2.57	2.38	2.41	2.10
13,	2.74	3.41	3.78	6.40	3.05	4.05	3.24	2.63	2.57	2.32	2.32	2.07
14,	2.72	3.40	3.51	5.16	3.13	4.58	3.27	2.59	2.52	2.31	2.27	2.06
15,	2.70	3.31	3.16	4.56	3.04	4.49	3.33	2.68	2.49	2.32	2.22	2.05
16,	2.62	3.20	3.14	4.60	2.92	4.15	3.30	3.21	2.45	2.28	2.16	2.06
17,	2.60	3.10	3.10	5.92	2.87	5.84	3.17	3.26	2.41	2.29	2.16	2.14
18,	2.58	3.04	3.16	5.82	2.81	3.60	3.06	2.97	2.29	2.75	2.30	2.25
19,	2.82	3.00	3.28	5.40	2.85	3.55	3.04	2.87	2.11	2.50	2.29	2.29
20,	3.08	2.98	3.16	4.83	3.12	3.48	2.96	2.84	2.51	2.34	2.22	2.23
21,	2.84	2.94	3.18	5.10	3.53	3.44	2.87	2.79	2.68	2.27	2.18	2.51
22,	2.72	2.88	3.19	4.70	4.71	3.35	2.82	3.45	2.64	2.20	2.16	2.73
23,	5.89	2.83	3.08	5.32	4.80	3.20	2.83	4.67	2.50	2.11	2.17	2.52
24,	5.31	2.80	2.92	6.08	3.78	3.18	2.78	3.90	2.45	2.18	2.15	2.35
25,	†6.60	2.82	2.86	5.14	3.51	3.34	2.76	3.74	2.47	2.43	2.13	2.25
26,	6.20	2.79	2.80	4.62	3.36	5.64	2.76	3.85	2.49	2.39	2.13	2.23
27,	5.04	2.76	2.92	4.26	4.12	§8.13	3.34	‡‡9.76	3.39	2.26	2.08	2.15
28,	4.45	2.73	2.91	3.98	5.97	6.20	3.65	6.67	2.95	2.30	2.06	2.13
29,	4.06	2.66	2.75	3.74	....	5.07	4.28	5.25	2.91	2.70	2.07	2.09
30,	3.78	2.66	3.76	3.58	....	4.52	3.80	4.61	2.71	2.72	2.15	2.07
31,	3.56	....	5.38	3.64	....	4.22	....	4.57	....	2.39	2.13	....

Notes.—†Maximum 7.10 ft. at 6 P. M. ‡Maximum 10.50 ft. at 3 P. M. §Maximum 8.70 ft. at 2 P. M. ‡‡Maximum 10.41 ft. at 11 A. M.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF BLACK LICK CREEK AT BLACK LICK, INDIANA COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	2.73	3.53	3.18	3.06	6.06	....	4.83	3.65	2.63	2.69	2.13	2.29
2,	3.68	3.28	3.16	3.00	5.24	....	5.45	3.45	2.58	2.87	2.08	2.27
3,	4.95	3.20	3.12	3.27	4.47	....	4.99	3.29	2.51	2.86	2.23	2.32
4,	3.69	3.08	3.09	3.38	3.90	....	4.54	3.21	2.81	2.67	2.33	2.27
5,	3.03	3.06	3.04	3.10	4.18	....	4.26	4.36	3.94	2.52	2.23	2.22
6,	2.48	2.96	3.02	3.07	3.92	....	3.99	‡6.44	3.17	2.91	2.18	2.17
7,	2.70	2.88	3.56	3.08	3.84	....	3.84	4.95	2.86	2.61	2.23	2.15
8,	2.59	2.92	4.64	3.08	3.56	....	3.99	4.51	2.74	2.51	2.13	2.17
9,	2.53	3.76	4.06	3.39	3.30	....	4.39	4.46	2.63	2.48	2.18	2.13
10,	2.45	6.24	3.84	4.72	3.32	....	4.04	4.05	2.58	2.44	2.36	2.07
11,	2.55	4.87	3.70	4.07	3.27	....	3.89	3.81	2.51	2.40	2.34	2.09
12,	2.60	4.38	3.44	3.73	3.20	....	3.99	4.39	2.49	2.30	2.63	2.09
13,	2.57	4.85	3.39	3.48	*	....	3.79	6.16	2.43	2.45	2.74	2.07
14,	2.49	5.55	3.34	3.63	....	....	3.62	4.96	2.35	3.10	2.50	2.05
15,	2.39	5.06	3.82	3.56	....	....	4.83	4.41	2.33	3.16	2.40	2.03
16,	2.35	5.04	3.16	3.49	....	....	†6.59	4.00	2.26	2.85	2.28	2.07
17,	2.35	4.69	3.16	3.62	....	....	5.83	3.76	2.29	3.10	2.19	2.03
18,	2.39	4.22	3.14	3.22	....	6.58	4.96	3.51	2.25	3.95	2.17	1.99
19,	2.45	3.97	3.05	3.12	....	5.30	4.75	3.33	2.23	3.16	2.32	1.97
20,	4.18	3.66	2.92	3.38	....	4.60	4.56	3.19	2.24	2.78	2.07	2.01
21,	3.75	3.57	3.07	4.65	....	4.06	4.63	3.09	2.26	2.70	2.13	1.98
22,	3.41	3.58	2.96	4.38	....	3.90	4.43	3.00	2.32	2.49	2.49	1.92
23,	3.11	3.35	3.05	4.39	....	3.88	4.31	2.92	2.43	2.48	2.25	1.93
24,	3.33	3.23	3.58	4.33	....	3.69	4.01	2.83	2.42	2.44	2.20	2.00
25,	4.17	3.17	3.60	4.75	....	3.87	3.66	2.77	2.83	2.43	2.25	1.97
26,	6.81	3.03	3.94	4.34	....	4.75	5.65	2.70	2.63	2.41	2.18	1.99
27,	4.86	2.99	3.45	4.12	....	5.30	5.08	2.67	2.39	2.35	2.17	2.13
28,	4.31	3.01	3.24	4.62	....	6.36	4.51	3.01	4.98	2.34	2.12	1.98
29,	3.93	3.24	3.44	5.82	....	5.43	4.17	3.68	3.49	2.34	2.25	1.98
30,	3.71	3.34	3.14	5.82	....	5.64	3.91	2.99	2.93	2.25	2.62	2.05
31,	3.73	....	3.20	5.80	....	5.48	....	2.75	....	2.15	2.45	....

Notes.—*Creek frozen February 13 to March 17, 1914, inclusive. †Maximum 6.95 ft. at 7 A. M. ‡Maximum 7.16 ft. at 7 A. M.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF BLACK LICK CREEK AT BLACK LICK, INDIANA COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.98	2.17	2.23	3.75	6.23	3.30	2.98	2.63	3.79	3.56	2.46	2.29
2,	2.07	2.14	2.75	3.62	§8.51	3.27	2.90	2.67	3.89	3.66	‡‡3.70	2.24
3,	2.02	2.22	2.77	3.29	6.85	3.12	2.90	2.57	5.75	4.43	4.70	2.24
4,	1.97	2.11	2.61	3.19	5.23	3.05	2.73	2.63	5.32	4.20	4.38	2.24
5,	1.97	2.13	2.42	3.05	4.57	3.07	2.80	2.79	4.43	4.03	3.74	2.24
6,	1.97	2.12	2.35	3.10	4.75	3.02	2.83	2.77	3.99	3.50	3.30	2.18
7,	2.00	2.11	2.37	‡9.33	4.46	3.07	3.08	2.72	4.05	3.33	3.28	2.18
8,	1.99	2.07	2.55	6.02	3.95	3.09	2.98	2.83	4.01	3.63	3.08	2.18
9,	2.02	2.07	2.83	5.02	3.57	3.02	2.88	2.87	3.42	3.70	3.16	2.19
10,	2.13	2.13	2.87	3.98	3.42	3.07	2.88	2.69	3.20	3.10	3.27	2.18
11,	2.18	2.11	2.81	3.73	3.58	3.11	3.03	2.65	3.22	3.13	3.10	2.54
12,	2.20	2.07	2.75	3.97	3.97	3.27	3.60	2.59	2.99	3.60	3.03	2.93
13,	2.19	2.07	2.48	3.93	5.02	3.06	3.53	2.58	3.25	3.33	2.86	2.78
14,	2.23	2.07	2.57	3.57	5.28	3.19	3.30	2.55	3.83	3.23	2.78	2.43
15,	2.23	2.12	2.62	3.61	6.73	3.27	3.12	2.47	3.41	2.94	2.73	2.38
16,	2.29	2.32	2.75	3.65	5.87	3.31	3.08	2.57	3.52	3.20	2.58	2.28
17,	2.32	2.37	2.73	4.09	5.02	3.37	3.00	2.65	3.29	3.40	2.50	2.24
18,	2.33	2.36	2.65	6.74	4.39	3.29	2.92	2.62	3.09	3.48	2.47	2.19
19,	2.24	2.32	2.59	7.22	3.92	3.32	2.88	2.50	2.99	2.90	2.43	2.33
20,	2.20	2.27	3.22	6.63	3.82	3.17	2.88	2.47	2.85	2.80	2.38	2.56
21,	2.15	2.29	†4.39	4.79	3.59	3.19	2.80	3.19	2.75	2.80	2.46	2.48
22,	2.13	2.19	5.28	4.22	3.55	3.13	2.78	4.33	2.65	2.79	2.48	2.38
23,	2.12	2.15	4.17	3.89	3.57	3.01	2.72	5.58	2.72	2.63	2.42	2.24
24,	2.13	2.17	3.82	3.73	4.22	3.19	2.78	4.85	2.66	2.48	2.68	2.28
25,	2.07	2.13	3.49	3.66	4.75	3.27	2.68	4.64	2.51	2.46	2.48	2.23
26,	2.09	2.18	2.98	3.45	4.05	3.49	2.66	4.24	2.57	2.50	2.39	2.24
27,	2.15	2.09	2.89	3.45	3.68	3.31	2.64	3.76	2.73	2.52	2.43	2.24
28,	2.13	2.09	3.17	3.37	3.57	3.25	2.65	3.52	2.49	2.40	2.42	2.38
29,	2.11	2.19	3.07	2.96	....	3.19	2.73	3.57	2.39	2.47	2.46	2.34
30,	2.13	2.24	3.81	2.99	....	3.10	2.66	4.45	2.72	2.43	2.48	2.28
31,	2.12	....	4.01	3.15	....	3.04	....	4.15	....	2.48	2.49	....

Notes.—†Maximum 5.67 ft. at 5 P. M. ‡Maximum 10.72 ft. at 9 A. M. §Maximum 9.47 ft. at 7 A. M. ‡‡Maximum 5.88 ft. at 7 P. M.

DAILY DISCHARGE, IN SECOND-FEET, OF BLACK LICK CREEK AT BLACK LICK, INDIANA COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1913.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	577	577	198	1420	813	1840	965	681	982	120	56	24
2,	448	551	248	990	514	1480	760	508	745	108	48	22
3,	395	459	611	3890	577	1140	702	432	558	96	39	24
4,	347	385	405	3760	526	925	590	375	464	85	34	20
5,	304	338	338	3250	400	1100	525	342	390	120	31	17
6,	268	312	1940	2730	432	861	464	304	342	127	26	20
7,	233	646	1820	6550	426	481	415	323	305	96	584	27
8,	202	1090	1060	‡11700	437	503	365	266	309	74	470	64
9,	595	723	745	4820	405	667	327	232	245	80	300	58
10,	437	660	551	2400	351	853	305	212	188	93	143	39
11,	288	611	716	6220	356	1360	346	192	146	114	120	33
12,	240	564	829	9280	365	1180	532	180	143	85	93	28
13,	219	532	790	4260	342	1010	437	165	143	69	69	24
14,	212	525	597	2170	380	1500	454	150	127	67	58	22
15,	205	476	395	1480	337	1410	486	184	117	69	48	22
16,	179	415	385	1520	283	1100	470	420	105	60	38	22
17,	172	365	365	3370	261	837	400	448	93	60	38	34
18,	166	338	395	3200	236	660	346	305	62	212	64	54
19,	248	320	459	2520	253	625	337	261	89	120	62	62
20,	356	312	395	1760	375	577	300	249	123	74	48	50
21,	256	296	405	2090	611	551	261	228	184	58	41	123
22,	212	272	410	1620	1630	498	240	558	169	44	38	204
23,	3320	252	356	2400	1730	415	245	1590	120	30	39	127
24,	2390	240	288	3650	790	405	224	885	105	41	36	77
25,	†4660	248	264	2150	597	492	216	760	111	99	33	54
26,	3880	236	240	1540	503	2900	216	845	117	87	33	50
27,	2010	226	288	1190	1070	§7850	492	‡‡11600	520	56	26	36
28,	1370	216	284	949	3460	3880	695	4800	296	64	23	33
29,	1020	192	222	760	....	2050	1210	2300	278	192	24	27
30,	790	192	775	646	....	1440	805	1530	196	200	36	24
31,	632	....	2500	688	....	1160	....	1490	....	87	33	....

Notes.—†Maximum=5690 sec.-ft. ‡Maximum=13500 sec.-ft. §Maximum=9100 sec.-ft. ‡‡Maximum =13300 sec.-ft.

DAILY DISCHARGE, IN SECOND-FEET, OF BLACK LICK CREEK AT BLACK LICK, INDIANA COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	204	611	405	346	3620	300	1760	695	165	188	33	62
2,	716	459	395	318	2290	300	2600	558	146	261	26	58
3,	1900	415	375	454	1390	300	1950	464	123	257	50	69
4,	723	356	360	514	885	300	1460	420	236	180	72	58
5,	332	346	337	365	1120	300	1190	1280	917	127	50	48
6,	114	300	327	351	901	300	957	‡4340	400	278	41	39
7,	192	266	632	356	837	300	837	1900	257	157	50	36
8,	150	283	1560	356	632	300	957	1430	208	123	33	39
9,	130	775	1020	520	470	300	1310	1380	165	114	41	33
10,	105	3950	837	1640	481	300	999	1010	146	102	30	24
11,	136	1810	730	1020	454	300	877	813	123	90	74	27
12,	153	1300	551	752	415	300	957	1310	117	64	165	27
13,	143	1790	520	577	*400	300	798	3800	99	105	208	24
14,	117	2760	492	681	400	300	674	1910	77	365	120	22
15,	87	2040	481	632	400	300	1760	1330	72	395	90	20
16,	77	2010	395	584	400	300	†4640	965	56	258	60	24
17,	77	1610	395	674	400	300	3220	775	62	365	42	20
18,	87	1160	385	426	400	4620	1910	597	54	925	39	15
19,	105	941	342	375	400	2380	1680	486	50	395	69	14
20,	1080	702	283	514	400	1520	1480	410	52	224	24	17
21,	768	639	351	1570	350	1030	1550	360	56	192	33	14
22,	582	646	300	1300	350	885	1350	318	69	117	117	10
23,	370	498	342	1310	350	869	1240	283	99	114	54	10
24,	486	432	646	1260	350	723	974	245	96	102	44	16
25,	1110	400	660	1680	350	861	702	220	245	99	54	14
26,	4080	332	917	1270	350	1680	2920	192	165	93	[illegible]	15
27,	1800	314	558	1070	350	2380	2000	180	87	77	[illegible]	33
28,	1240	323	437	1540	350	4180	1430	323	1940	74	31	14
29,	909	437	551	3200	....	2570	1110	716	584	74	54	14
30,	738	492	385	3200	....	2900	893	314	287	54	161	22
31,	752	....	415	3160	....	2650	....	212	....	36	105	....

Notes.—*Creek frozen February 13 to March 17, 1914, inclusive, and discharge estimated from climatological records. †Maximum=5380 sec.-ft. ‡Maximum=5820 sec.-ft.

DAILY DISCHARGE, IN SECOND-FEET, OF BLACK LICK CREEK AT BLACK LICK, INDIANA COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	14	39	50	768	3930	470	309	165	798	632	108	62
2,	24	34	212	674	§8680	454	274	143	877	702	‡‡1780	52
3,	18	48	220	464	5160	375	274	143	3080	1350	1620	52
4,	14	30	157	410	2270	342	204	165	2400	1140	1300	52
5,	14	33	96	342	1490	351	232	228	1350	990	760	52
6,	14	31	77	365	1680	327	245	220	957	590	470	41
7,	16	30	82	‡10500	1380	351	356	200	1010	486	459	41
8,	15	24	136	3550	925	360	309	245	974	681	356	41
9,	18	24	245	1990	639	327	266	261	538	730	395	42
10,	33	33	261	949	538	351	266	188	415	365	454	41
11,	41	30	236	752	646	370	332	172	426	880	365	133
12,	44	24	212	941	941	454	660	150	314	660	332	287
13,	42	24	114	909	1990	342	611	146	442	486	257	204
14,	50	24	143	639	2350	410	470	136	829	482	224	99
15,	50	31	161	667	4920	454	375	111	532	292	204	85
16,	62	69	212	695	3280	476	356	143	604	415	146	60
17,	69	82	204	1040	1990	508	318	172	464	525	120	52
18,	72	80	172	4940	1810	464	283	161	380	577	111	42
19,	52	69	150	5940	901	481	266	120	314	274	99	72
20,	44	58	426	2870	821	400	266	111	253	232	85	140
21,	36	62	†1310	1720	653	410	232	410	212	232	108	114
22,	33	42	2350	1160	625	375	224	1250	172	228	114	85
23,	31	36	1110	877	639	323	200	2810	200	165	96	52
24,	33	39	821	752	1160	410	224	1790	176	114	184	60
25,	24	33	584	702	1680	454	184	1560	123	108	114	50
26,	27	41	309	558	1010	584	176	1180	143	120	87	52
27,	36	27	270	558	716	476	169	775	204	127	99	52
28,	33	27	400	508	639	442	172	604	117	90	96	85
29.	30	42	351	296	....	410	204	639	87	111	108	74
30,	33	52	813	314	....	365	176	1370	200	99	114	60
31,	31	....	974	390	....	337	....	1100	....	114	117	....

Notes.—†Maximum=2950 sec.-ft. ‡Maximum=14100 sec.-ft. §Maximum=10900 sec.-ft. ‡‡Maximum=3300 sec.-ft.

ESTIMATED MONTHLY DISCHARGE OF BLACK LICK CREEK AT BLACK LICK, INDIANA COUNTY, PA.

(Drainage area 386 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1912.					
October,	5690	166	853	2.21	2.55
November,	1090	192	419	1.08	1.21
December,	2500	198	622	1.61	1.86
1913.					
January,	13500	646	3060	7.93	9.14
February,	3460	236	659	1.71	1.78
March,	9100	405	1350	3.50	4.04
April,	1210	216	471	1.22	1.36
May,	13300	150	1060	2.75	3.17
June,	982	30	257	0.67	0.75
July,	212	30	93	0.24	0.28
August,	584	23	88	0.23	0.26
September,	204	17	47	0.12	0.13
The year,	13500	17	748	1.94	26.53
a1913.					
October,	4080	77	626	1.62	1.87
November,	3950	266	947	2.45	2.73
December,	1560	283	528	1.37	1.58
1914.					
January,	3200	318	1030	2.67	3.08
February,	3620	....	696	1.80	1.87
March,	4620	....	1110	2.88	3.32
April,	5380	674	1540	3.99	4.45
May,	5820	180	943	2.44	2.81
June,	1940	50	238	0.62	0.69
July,	925	36	194	0.50	0.58
August,	208	24	68	0.18	0.21
September,	69	10	28	0.07	0.08
The year,	5820	10	662	1.72	23.27
1914.					
October,	72	14	34	0.09	0.10
November,	82	24	41	0.11	0.12
December,	2950	50	415	1.08	1.24
1915.					
January,	14100	296	1520	3.94	4.54
February,	10900	538	1890	4.90	5.10
March,	584	323	408	1.06	1.22
April,	660	169	288	0.75	0.84
May,	2810	111	544	1.41	1.63
June,	3080	87	619	1.60	1.78
July,	1350	90	434	1.12	1.29
August,	3300	85	317	0.82	0.94
September,	287	41	78	0.20	0.22
The year,	14100	14	549	1.42	19.02

Note.—a Creek frozen February 13 to March 17, 1914, inclusive, and discharge estimated from climatological records.

OHIO BASIN—STATION NO. 19.

KISKIMINITAS RIVER AT AVONMORE, PA.

DESCRIPTION OF STATION.

LOCATION—At four span, steel, through-truss, highway bridge, at P. R. R. station, Avonmore, Westmoreland County.

RECORDS AVAILABLE—Discharge complete May 29, 1907, to September 30, 1915.

DRAINAGE AREA—1,720 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge and is read twice daily by J. H. Shoup.

CHANNEL—The right bank is high, the left bank is low and liable to overflow, and the bed is composed of gravel.

DISCHARGE MEASUREMENT OF KISKIMINITAS RIVER AT AVONMORE, WESTMORELAND COUNTY, PA.

(Drainage area 1,720 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec. ft.	
31	Aug. 17	Wilson & Taylor, ...	414	2.95	594	0.6 method.

DISCHARGE TABLE FOR KISKIMINITAS RIVER AT AVONMORE, WESTMORELAND COUNTY, PA., FROM JANUARY 1, 1913.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
1.50	45	.40	5140	.30	16430	.20	33820	.10	56340
.60	55	.50	5270	.40	16680	.30	34165	.20	56760
.70	70	.60	5400	.50	16930	.40	34510	.30	57180
.80	90	.70	5540	.60	17180	.50	34860	.40	57600
.90	115	.80	5680	.70	17430	.60	35210	.50	58020
2.00	145	.90	5820	.80	17680	.70	35565	.60	58440
.10	175	8.00	5960	.90	17935	.80	35920	.70	58860
.20	205	.10	6110	14.00	18190	.90	36275	.80	59280
.30	245	.20	6260	.10	18445	20.00	36630	.90	59700
.40	285	.30	6410	.20	18700	.10	36985	26.00	60120
.50	330	.40	6560	.30	18955	.20	37340	.10	60540
.60	375	.50	6710	.40	19210	.30	37700	.20	60960
.70	425	.60	6860	.50	19470	.40	38060	.30	61380
.80	480	.70	7010	.60	19730	.50	38425	.40	61800
.90	540	.80	7160	.70	19990	.60	38790	.50	62220
3.00	600	.90	7310	.80	20255	.70	39155	.60	62640
.10	665	9.00	7460	.90	20520	.80	39520	.70	63060
.20	735	.10	7620	15.00	20790	.90	39885	.80	63480
.30	805	.20	7780	.10	21065	21.00	40250	.90	63900
.40	875	.30	7950	.20	21345	.10	40615	27.00	64320
.50	945	.40	8120	.30	21630	.20	40980	.10	64740
.60	1015	.50	8290	.40	21920	.30	41345	.20	65160
.70	1090	.60	8460	.50	22210	.40	41710	.30	65580
.80	1165	.70	8630	.60	22500	.50	42075	.40	66000
.90	1245	.80	8800	.70	22790	.60	42440	.50	66420
4.00	1325	.90	8980	.80	23080	.70	42805	.60	66840
.10	1410	10.00	9170	.90	23375	.80	43175	.70	67260
.20	1500	.10	9360	16.00	23670	.90	43545	.80	67680
.30	1590	.20	9550	.10	23965	22.00	43920	.90	68100
.40	1680	.30	9740	.20	24260	.10	44295	28.00	68520
.50	1770	.40	9930	.30	24555	.20	44670	.10	68940
.60	1860	.50	10120	.40	24850	.30	45045	.20	69360
.70	1955	.60	10320	.50	25150	.40	45425	.30	69780
.80	2050	.70	10520	.60	25450	.50	45805	.40	70200
.90	2150	.80	10720	.70	25750	.60	46185	.50	70620
5.00	2250	.90	10920	.80	26050	.70	46570	.60	71040
.10	2355	11.00	11120	.90	26355	.80	46955	.70	71460
.20	2465	.10	11330	17.00	26660	.90	47340	.80	71880
.30	2575	.20	11540	.10	26965	23.00	47730	.90	72300
.40	2685	.30	11750	.20	27270	.10	48120	29.00	72720
.50	2800	.40	11970	.30	27575	.20	48510	.10	73140
.60	2915	.50	12190	.40	27885	.30	48905	.20	73560
.70	3030	.60	12410	.50	28195	.40	49305	.30	73985
.80	3145	.70	12630	.60	28510	.50	49705	.40	74410
.90	3260	.80	12860	.70	28830	.60	50110	.50	74835
6.00	3380	.90	13090	.80	29150	.70	50515	.60	75260
.10	3500	12.00	13320	.90	29475	.80	50925	.70	75690
.20	3620	.10	13555	18.00	29800	.90	51335	.80	76120
.30	3740	.20	13790	.10	30125	24.00	51750	.90	76550
.40	3865	.30	14025	.20	30450	.10	52165	30.00	76980
.50	3990	.40	14260	.30	30780	.20	52580	.10	77415
.60	4115	.50	14495	.40	31110	.30	52995	.20	77850
.70	4240	.60	14730	.50	31445	.40	53410	.30	78285
.80	4365	.70	14970	.60	31780	.50	53825	.40	78720
.90	4490	.80	15210	.70	32115	.60	54240	.50	79160
7.00	4620	.90	15450	.80	32450	.70	54660	.60	79600
.10	4750	13.00	15690	.90	32790	.80	55080	.70	80040
.20	4880	.10	15935	19.00	33130	.90	55500	31.00	81360
.30	5010	.20	16180	.10	33475	25.00	55920	32.00	85760

DAILY MEAN GAGE HEIGHTS, IN FEET, OF KISKIMINITAS RIVER AT AVONMORE, WESTMORELAND COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	2.34	2.37	2.47	....	10.36	6.19	4.25	3.50	7.53	3.62	3.27	3.08
2,	2.34	2.39	2.80	....	20.98	5.47	4.12	3.45	6.75	4.70	3.07	2.85
3,	2.34	2.37	3.14	....	15.69	5.07	3.92	3.33	‡10.43	5.37	‖7.70	2.68
4,	2.34	2.37	3.05	....	11.13	4.74	3.87	3.35	12.15	5.47	6.44	2.60
5,	2.34	2.37	2.87	....	9.16	4.57	3.75	3.63	9.41	5.04	6.40	2.60
6,	2.77	2.35	2.83	....	8.89	4.64	3.77	4.10	7.78	4.57	5.00	2.58
7,	2.34	2.37	2.93	†18.06	8.26	4.77	3.87	3.90	6.81	4.17	3.82	2.60
8,	2.34	2.37	3.75	12.35	7.43	4.79	4.27	3.73	6.63	3.92	4.00	2.65
9,	2.39	2.37	3.67	8.93	6.71	4.87	4.19	3.73	5.78	4.42	3.90	2.62
10,	2.39	2.35	3.85	7.03	6.11	4.91	4.07	3.55	5.08	3.87	4.12	2.60
11,	2.39	2.37	3.85	6.21	5.96	5.01	4.15	3.45	4.68	3.54	3.80	2.75
12,	2.47	2.37	3.50	6.68	6.29	4.97	4.49	3.35	4.45	4.64	3.47	3.10
13,	2.59	2.37	3.25	6.83	9.71	4.57	4.92	3.25	4.68	5.22	3.40	3.00
14,	2.64	2.37	2.97	6.03	11.16	4.51	4.62	3.25	5.21	4.20	3.34	2.80
15,	2.64	2.42	3.70	5.78	12.86	4.84	4.32	3.25	5.21	3.77	3.14	2.68
16,	2.64	2.55	3.43	6.15	13.19	5.29	4.15	3.20	5.08	4.07	2.97	2.68
17,	2.67	2.72	3.47	6.75	10.19	5.41	4.02	3.20	4.41	4.17	2.96	2.72
18,	2.69	2.95	3.30	11.51	8.66	5.24	3.95	3.45	4.08	3.97	2.88	2.50
19,	2.71	2.75	3.37	14.95	7.39	4.87	3.79	3.40	3.81	3.54	2.80	2.62
20,	2.61	*	3.95	11.55	6.56	4.77	3.77	3.27	3.88	3.32	2.72	3.12
21,	2.57	....	7.28	9.11	6.53	4.57	3.82	3.47	3.63	3.22	2.70	3.08
22,	2.49	....	8.75	7.61	6.41	4.47	3.72	9.47	3.45	3.42	2.70	2.82
23,	2.47	....	6.20	7.11	6.39	4.41	3.72	12.23	3.33	3.40	2.90	2.70
24,	2.44	....	5.55	7.11	6.98	4.39	3.82	9.77	3.23	3.12	3.20	2.68
25,	2.44	2.75	7.37	6.53	10.01	4.49	3.92	10.35	3.15	3.20	3.05	2.55
26,	2.39	2.47	*	6.11	8.39	4.64	3.75	8.23	3.13	2.94	2.80	2.50
27,	2.34	2.42	....	5.83	7.16	5.31	3.67	7.15	3.13	2.92	2.70	2.50
28,	2.37	2.42	....	5.38	6.49	4.81	3.57	6.13	3.05	3.07	2.70	2.58
29,	2.39	2.42	....	4.93	....	4.71	3.65	6.20	2.93	2.94	2.85	2.68
30,	2.41	2.45	....	5.25	....	4.54	3.65	8.85	3.08	2.97	3.00	2.55
31,	2.47	....	....	7.43	....	4.39	....	9.17	....	3.64	3.30	....

Notes.—*River frozen November 20 to 24, 1914, and December 26, 1914, to January 6, 1915, inclusive. †Maximum 19.70 ft. at 4:45 P. M. ‡Maximum 14.00 ft. at midnight from hydrograph. ‖Maximum 8.55 ft. at 8:45 A. M.

DAILY DISCHARGE, IN SECOND-FEET, OF KISKIMINITAS RIVER AT AVONMORE, WESTMORELAND COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	261	273	316	2320	9850	3610	1540	945	5810	1080	784	652
2,	261	281	480	2320	40200	2760	1430	910	4300	1960	646	510
3,	261	273	693	2330	22800	2320	1260	826	‡9990	2650	‖5540	415
4,	261	273	682	2320	11400	1990	1220	840	13700	2760	3920	375
5,	261	278	522	2320	7720	1830	1130	1040	8140	2290	3860	375
6,	233	265	498	2320	7300	1900	1140	1410	5650	1830	2250	366
7,	261	273	558	†30000	6350	2020	1220	1240	4380	1470	1180	375
8,	261	273	1130	14100	5130	2040	1560	1110	4150	1260	1320	400
9,	281	273	1070	7360	4250	2120	1490	1110	3120	1700	1240	385
10,	281	265	1200	4660	3510	2160	1380	980	2330	1220	1430	375
11,	281	273	1200	3690	3330	2260	1460	910	1940	978	1160	452
12,	316	273	945	4220	3780	2220	1760	840	1720	1900	924	665
13,	370	273	770	4400	8650	1830	2170	770	1940	2490	875	600
14,	395	273	582	3420	11500	1780	1880	770	2480	1500	833	480
15,	395	294	1090	3120	15400	2090	1610	770	2480	1140	693	415
16,	395	352	896	3560	16200	2560	1460	735	2280	1880	582	415
17,	410	436	924	4300	9580	2700	1340	735	1690	1470	576	486
18,	420	570	805	12200	6950	2510	1280	910	1390	1800	528	330
19,	430	452	854	20700	5130	2120	1160	875	1170	978	480	385
20,	380	*310	1280	12300	4060	2020	1140	784	1230	819	436	679
21,	362	310	4980	7640	4030	1830	1180	924	1040	749	425	652
22,	326	310	7080	5410	3880	1740	1100	8240	910	889	425	492
23,	316	310	3620	4760	3850	1690	1100	18900	826	875	540	425
24,	303	310	2860	4760	4590	1670	1180	8750	756	679	736	415
25,	303	452	5100	4030	9190	1760	1260	9840	700	736	632	352
26,	281	316	*2410	3510	6540	1900	1130	6300	686	564	480	330
27,	261	294	2410	3180	4830	2590	1070	4820	686	552	425	330
28,	278	294	2410	2660	3980	2060	994	3540	632	646	425	366
29,	281	294	2410	2180	....	1960	1050	3620	558	564	510	415
30,	290	308	2410	2520	....	1810	1050	7240	652	582	600	352
31,	316	....	2410	5180	....	1670	....	7730	....	1040	805	....

Notes.—*River frozen November 20 to 24, 1914, and December 26, 1914, to January 6, 1915, inclusive, and discharge estimated from Black Lick Creek at Black Lick. †Maximum=35600 sec.-ft. ‡Maximum=18200 sec.-ft. ‖Maximum=6780 sec.-ft.

ESTIMATED MONTHLY DISCHARGE OF KISKIMINITAS RIVER AT AVONMORE, WESTMORELAND COUNTY, PA.

(Drainage area 1,720 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	430	233	314	0.18	0.21
November,	570	265	314	0.18	0.20
December,	7080	316	1760	1.02	1.18
1915.					
January,	35600	2180	6060	3.52	4.06
February,	40200	3330	8710	5.06	5.27
March,	3610	1670	2110	1.23	1.42
April,	2170	994	1320	0.77	0.86
May,	13900	735	3010	1.75	2.03
June,	18200	558	2890	1.68	1.87
July,	2760	552	1290	0.75	0.86
August,	6780	425	1140	0.66	0.76
September,	679	330	440	0.26	0.29
The year,	40200	233	2450	1.42	19.00

Note.—River frozen November 20 to 24, 1914, December 26, 1914, to January 6, 1915, inclusive, and discharge estimated from Black Lick Creek at Black Lick.

OHIO BASIN—STATION NO. 20.

ALLEGHENY RIVER AT FREEPORT, PA.

DESCRIPTION OF STATION.

LOCATION—At three span, steel, through-truss, county highway bridge at Freeport, Armstrong County.

RECORDS AVAILABLE—Discharge measurements from March, 1912, to September, 1915, and gage heights of the Water Supply Commission March 21 to September 30, 1915. Gage heights have been observed by the U. S. Weather Bureau from April 16, 1873, to date. For other records on this river see Allegheny River at Larabee, Franklin and Kittanning; also Allegheny River at Red House, N. Y., in the 1911 to 1914 reports of the Water Supply Commission.

DRAINAGE AREA—11,400 square miles, including Buffalo Creek.

GAGE—A staff gage, whose elevation of zero is 741 feet above mean sea level, is located on the first pier from the right bank and is read twice daily by Mrs. Laverna Scott.

CHANNEL—The right bank is high, clean and liable to overflow in extreme stages. The left bank is high, clean and does not overflow and the bed is composed of sand, gravel and mud.

REMARKS—In connection with discharge measurements of the Allegheny River at Freeport measurements are obtained of Buffalo Creek from a two span, steel, through-truss, highway bridge at Lane Station, a short distance above the mouth, the combined discharge representing the run-off from the drainage area above Freeport. This station is maintained in co-operation with the U. S. Engineer Office in Pittsburgh.

DISCHARGE MEASUREMENTS OF ALLEGHENY RIVER AT FREEPORT, ARMSTRONG COUNTY, PA.

(Drainage area 11,400 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1912.		Sq. ft.	Feet.	Sec. ft.	
1	March 22	Larrison, ...	20700	20.17	126772	Sub. Surface method.
					1228	Buffalo Creek (estimated).
					128000	Total.
2	March 25	Bolster & Larrison, ...	16000	14.89	73742	0.2 & 0.8 method.
					1074	Buffalo Creek.
					74816	Total.
3	May 5	Larrison, ...	9800	7.45	23300	0.2 & 0.8 method.
					200	Buffalo Creek.
					23500	Total.
4	May 30	Mathers, ...	6700	3.55	7610	0.2 & 0.8 method.
					80	Buffalo Creek (estimated).
					7690	Total.
	1914.					
5	July 3	Ellsworth & Adams, ...	5610	2.54	4370	0.2, 0.6 & 0.8 method.
					33	Buffalo Creek.
					4403	Total.
6	Aug. 24	Ellsworth & Adams, ...	792	1.63	2060	Wading measurement 1¼ miles below bridge.
	1915.					
7	Aug. 17	Wilson & Taylor, ...	7696	4.90	10409	Surface & 0.6 method.
					61	Buffalo Creek.
					10470	Total.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF ALLEGHENY RIVER AT FREEPORT, ARMSTRONG COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	....	4.25	4.20	5.50	3.15	4.80	4.65
2,	....	4.20	3.95	5.00	4.75	4.50	4.35
3,	....	4.15	3.80	5.50	6.20	5.60	3.80
4,	....	3.95	3.55	7.85	7.55	8.90	3.25
5,	....	3.75	3.40	6.70	7.55	10.10	3.00
6,	....	3.65	3.40	5.65	7.35	9.60	3.00
7,	....	3.75	4.30	5.10	6.85	8.70	2.80
8,	....	4.05	4.30	4.55	5.95	7.50	2.70
9,	....	5.30	4.95	4.25	6.55	6.80	2.75
10,	....	5.50	6.35	3.95	9.60	6.65	2.70
11,	....	6.10	5.75	3.55	9.15	6.60	2.70
12,	....	6.90	5.10	3.20	8.00	6.10	2.65
13,	....	7.97	4.45	3.05	9.35	4.90	2.50
14,	....	7.90	4.00	3.35	9.10	4.80	2.40
15,	....	7.00	3.60	4.25	7.85	4.50	2.40
16,	....	6.20	3.15	4.50	6.60	4.80	2.40
17,	....	5.55	3.15	4.30	6.10	4.82	2.40
18,	....	5.10	3.00	4.20	8.35	4.50	2.30
19,	....	4.80	3.30	3.65	7.60	4.20	3.15
20,	....	4.40	3.75	3.25	5.95	3.75	4.25
21,	4.30	4.30	4.05	3.05	5.50	3.40	4.30
22,	4.20	4.20	5.70	2.85	5.40	3.60	4.15
23,	4.20	3.95	†10.50	2.75	5.30	3.60	3.50
24,	4.20	3.65	9.80	2.70	4.70	6.65	3.15
25,	4.20	3.60	9.40	2.70	4.30	6.55	3.00
26,	4.35	3.60	8.30	2.85	3.75	5.55	2.80
27,	4.85	3.50	7.55	2.95	3.45	4.90	2.70
28,	5.00	3.30	6.10	2.75	3.15	4.85	2.85
29,	4.85	3.30	5.65	2.60	3.35	4.50	3.30
30,	4.45	4.23	6.20	2.80	3.65	4.30	3.50
31,	4.35	....	6.30	....	3.60	4.60	....

Note.—†Maximum 11.3 ft. at 3 P. M.

OHIO BASIN—STATION NO. 21.

DUNKARD CREEK AT "BOBTOWN," PA.

DESCRIPTION OF STATION.

LOCATION—At single span, wooden covered bridge, about 2 miles above mouth, at "Bobtown," Greene County.

RECORDS AVAILABLE—Discharge measurements and gage heights from October 14, 1909, to September 30, 1915.

DRAINAGE AREA—230 square miles.

GAGE—A staff gage, whose elevation of zero is arbitrary, is located on the downstream wing of the left abutment, and is read twice daily by Mrs. Enlow Stoneking.

CHANNEL—Both banks are high and do not overflow; bed is rocky; section is deep and current sluggish at low stages.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF DUNKARD CREEK AT "BOBTOWN," GREENE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.60	0.80	0.98	2.15	*7.33	1.64	1.56	1.69	2.75	0.83	0.77	0.65
2,	0.60	0.78	1.40	2.22	5.30	1.60	1.52	1.58	2.36	0.88	0.75	0.81
3,	0.58	0.76	1.55	1.78	4.52	1.64	1.47	1.48	2.22	0.92	0.72	0.89
4,	0.58	0.75	1.52	1.89	3.35	1.58	1.42	1.45	2.28	1.01	0.72	0.87
5,	0.57	0.75	4.10	1.72	3.88	1.56	1.38	1.46	2.06	1.00	0.70	0.83
6,	0.56	0.74	4.30	1.78	4.18	1.48	1.36	1.47	1.82	1.06	0.76	0.80
7,	0.56	0.74	3.50	‡6.50	3.29	2.18	1.34	1.42	1.68	1.14	0.79	0.77
8,	0.56	0.72	3.55	3.50	2.81	2.39	1.32	1.41	1.62	1.15	0.76	0.76
9,	0.60	0.74	3.30	2.74	2.46	2.29	1.30	1.33	1.66	1.08	0.74	0.74
10,	0.60	0.75	3.07	2.82	2.29	2.17	1.28	1.32	1.54	1.06	0.73	0.70
11,	0.62	0.74	2.79	2.22	2.22	2.04	1.26	1.24	1.45	1.02	0.71	0.70
12,	0.60	0.73	2.40	4.77	2.19	1.96	1.24	1.26	1.43	0.97	0.70	0.64
13,	0.60	0.72	2.10	3.72	2.46	1.80	1.49	1.26	1.38	0.94	0.68	0.69
14,	0.74	0.70	1.99	3.05	2.72	1.71	1.65	1.22	1.52	0.90	0.65	0.90
15,	0.72	0.76	1.89	3.70	2.58	1.70	1.54	1.20	1.48	0.90	0.64	0.86
16,	0.76	0.81	1.95	3.38	2.48	1.68	1.49	1.20	1.36	0.92	0.62	1.00
17,	0.78	0.80	2.00	3.11	2.29	1.66	1.46	1.16	1.30	0.99	0.64	1.00
18,	0.88	0.79	1.94	3.99	2.16	1.60	1.43	1.12	1.26	0.94	0.62	1.04
19,	1.24	0.79	1.78	4.28	2.02	1.54	1.39	1.10	1.22	0.84	0.60	1.40
20,	1.14	0.81	3.95	2.70	1.86	1.54	1.44	1.12	1.16	0.80	0.60	2.12
21,	1.08	0.82	†6.22	2.65	1.80	1.58	1.39	1.82	1.11	0.80	0.58	1.62
22,	1.04	0.82	4.02	2.22	1.77	1.54	1.31	1.68	1.05	0.84	0.59	1.50
23,	1.04	0.80	2.70	3.71	1.72	1.52	1.36	3.05	0.95	0.84	0.58	1.40
24,	0.94	0.80	2.36	3.72	1.71	1.51	2.02	2.46	0.88	0.82	0.56	1.26
25,	0.90	0.82	2.18	3.55	1.79	1.53	1.99	2.00	0.85	0.82	0.55	1.14
26,	0.90	0.82	1.72	3.24	1.81	1.57	1.98	1.76	0.84	0.80	0.54	1.07
27,	0.88	0.82	2.36	2.95	1.74	1.68	1.78	1.58	0.84	0.80	0.54	1.12
28,	0.86	0.82	1.86	2.65	1.68	1.68	1.66	1.51	0.82	0.80	0.64	1.07
29,	0.84	0.83	1.75	2.15	....	1.66	1.75	1.46	0.80	0.80	0.71	0.98
30,	0.85	0.84	2.90	2.16	....	1.62	1.80	‡‡4.90	0.82	0.80	0.68	0.92
31,	0.84	....	2.69	2.19	....	1.57	....	3.90	....	0.89	0.66	....

Notes.—†Maximum 7.0 ft. at 4 P. M. ‡Maximum 5.0 ft. at 8 A. M. *Maximum 7.8 ft. at 3 P. M. ‡‡Maximum 5.88 ft. at 5.30 P. M.

SOUTH FORK TEN MILE CREEK.

SOURCE—In middle western Greene County; elevation 1,500 feet.

TRIBUTARY TO—Ten Mile Creek at Clarksville, Greene County; elevation 790 feet.

LENGTH—37 miles.

PROFILE—Rate of fall in feet per mile: from elevation 1,100 to 1,000, 5½ miles, 18; thence to elevation 900, 18½ miles, 5.4; thence to mouth, 11½ miles, 9.6.

DRAINAGE AREA—199 square miles.

TOPOGRAPHY AND DEVELOPMENT—The stream flows through a hilly, agricultural country, the main valley in the upper course being narrow and bordered by steep hills, but near Waynesburg it widens out and its course becomes tortuous. The main stream is used for domestic water supply at Waynesburg and for water power at a small mill.

PRINCIPAL TRIBUTARIES—Grays Fork, Browns, Smith and Ruff Creeks.

PRECIPITATION—35 to 40 inches annually.

HYDROGRAPHIC DATA—At Pollock's Mill, above Clarksville, from June, 1915, to date.

OHIO BASIN—STATION NO. 22.

SOUTH FORK TEN MILE CREEK AT POLLOCK'S MILL, GREENE COUNTY, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge, about two miles below Jefferson, Greene County.

RECORDS AVAILABLE—Discharge measurements and gage heights from June 22 to September 30, 1915.

DRAINAGE AREA—190 square miles.

GAGE—A vertical staff gage, whose elevation of zero is arbitrary, is located on the stream face of the right abutment near the lower corner and is read twice daily by James M. Pollock.

CHANNEL—Both banks are high and do not overflow and the bed is composed of rocks.

REMARKS—This station is maintained in co-operation with the U. S. Engineer Office in Pittsburgh.

DISCHARGE MEASUREMENTS OF SOUTH FORK TEN MILE CREEK AT POLLOCK'S MILL, GREENE COUNTY, PA.

(Drainage area 190 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec. ft.	
1	June 22	Inglefield,	33	0.98	15	Wading msmt. about 300 ft. above gage; 0.2 & 0.8 method.
2	Sept. 30	Wilson & Shade,	18	1.00	16	Wading msmt. about 200 ft. above bridge.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF SOUTH FORK TEN MILE CREEK AT POLLOCK'S MILL, GREENE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	JUNE.	JULY.	AUG.	SEPT.
1,	....	0.90	1.06	0.80
2,	....	1.15	1.00	0.80
3,	....	1.56	0.94	0.70
4,	....	1.65	0.94	0.70
5,	....	1.65	0.89	0.70
6,	....	1.55	0.80	0.70
7,	....	1.35	0.75	0.70
8,	....	1.20	0.75	0.60
9,	....	1.06	0.75	0.60
10,	....	1.01	0.70	0.60
11,	....	1.01	0.70	0.60
12,	....	1.00	0.70	0.60
13,	....	1.00	0.69	0.60
14,	....	1.00	0.68	0.50
15,	....	1.00	0.66	0.50
16,	....	1.40	0.60	0.50
17,	....	2.30	0.60	0.50
18,	....	1.65	0.64	0.50
19,	....	1.30	0.60	0.80
20,	....	1.10	0.50	1.55
21,	....	1.10	0.50	1.25
22,	0.98	1.22	0.51	1.20
23,	0.94	1.10	0.51	1.00
24,	0.90	1.00	0.51	0.90
25,	0.89	1.00	0.51	0.88
26,	0.86	0.94	0.62	0.80
27,	0.82	0.90	0.63	0.85
28,	0.82	0.89	0.72	1.00
29,	0.81	0.95	0.89	1.10
30,	0.82	0.94	0.90	1.00
31,	....	0.98	0.90	....

MONONGAHELA RIVER.

SOURCE—Its main tributary, the Tygart River, rises in the mountains of West Virginia in southern Randolph County, elevation 4,100 feet, being joined 118 miles below its source and 1½ miles south of Fairmont, West Virginia, by the West Fork to form the Monongahela, elevation 858 feet.

TRIBUTARY TO—Together with the Allegheny River, it forms the Ohio River at Pittsburgh, elevation 703.

LENGTH—Total from head of Tygart River, 246 miles; from forks to state boundary, 36 miles, and thence to mouth, 92 miles.

PROFILE—Rate of fall from forks to mouth, 128 miles, 1.2 feet per mile.

DRAINAGE AREA—7,340 square miles in Pennsylvania, West Virginia and Maryland, of which 2,728 square miles are in Pennsylvania.

TOPOGRAPHY AND DEVELOPMENT—The basin drains the western slopes of the Allegheny Mountains, the valleys being generally narrow with steep hillsides ranging in height from 600 feet along the upper reaches to 400 feet near the mouth. From Fairmont, West Virginia, to the Pennsylvania state line, the hills are close to the river and only a few small areas of bottom land are found, but these become more numerous until, near the mouth, they are in some cases a half mile wide.

The whole region was at one time heavily timbered but, on account of the development of coal mines, lumbering and other industries, it has been denuded of forests, except in the mountainous portion. One of the most valuable and extensively developed bituminous coal deposits in the world lies in this basin, while other natural resources are oil and gas. Extensive coke ovens are located on the watershed.

The stream is subject to severe floods which cause great damage principally along the lower 15 miles where many large towns have been built on the flood plains, including the cities of Pittsburgh and McKeesport. Navigation has been improved by the Federal Government with a series of 15 locks and dams, 8 of which are in Pennsylvania, creating a 6 foot depth extending 130.7 miles from the mouth, and a 4 foot depth almost a mile beyond.

Water power is practically undeveloped, but the stream is used extensively for water supply, especially in the lower reaches. It is estimated that the dry weather flow of the Monongahela River is used 20 times by industrial plants in the lower 15 miles.

PRINCIPAL TRIBUTARIES—In Pennsylvania, Cheat and Youghiogheny rivers, Dunkard, Ten Mile, Redstone and Turtle creeks.

PRECIPITATION—Mean annual, 41.4 inches for the total drainage area.

HYDROGRAPHIC DATA—At South Brownsville, from February, 1915, to date.

OHIO BASIN—STATION NO. 23.

MONONGAHELA RIVER AT SOUTH BROWNSVILLE, PA.

DESCRIPTION OF STATION.

LOCATION—At four span, highway bridge, known as "Brownsville Bridge," one-quarter mile below Lock No. 5, South Brownsville, Fayette County.

RECORDS AVAILABLE—Discharge measurements and gage heights February 18 to September 30, 1915.

DRAINAGE AREA—5,130 square miles.

GAGE—A staff gage, whose elevation of zero is 726.23 feet above mean sea level, is located on the downstream side of Lock No. 5 and is read twice daily by Charles W. Keibler.

CHANNEL—The right bank is high and not subject to overflow. The left bank overflows at extreme stages. The bed is composed of sand, gravel and mud.

REMARKS—This station is maintained in co-operation with the U. S. Engineer Office in Pittsburgh.

DISCHARGE MEASUREMENTS OF MONONGAHELA RIVER AT SOUTH BROWNSVILLE, FAYETTE COUNTY, PA.

(Drainage area 5,130 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec. ft.	
1	June 14	Ingleeld, ...	4653	10.28	2781	Current sluggish. 0.2 & 0.8 method.
2	Sept. 29	Wilson & Shade, ...	4861	10.50	2001	Surface msmt.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF MONONGAHELA RIVER AT SOUTH BROWNSVILLE, FAYETTE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1, ...	....	11.45	11.00	13.75	‡16.65	10.05	10.30	11.90
2, ...	....	11.30	10.75	12.50	14.30	10.10	10.25	11.45
3, ...	....	11.15	10.65	11.65	13.50	10.30	10.35	11.00
4, ...	....	11.00	10.55	11.20	14.00	10.40	11.30	10.80
5, ...	....	10.80	10.40	11.00	13.95	10.30	11.45	10.65
6, ...	....	10.85	10.40	10.85	12.75	10.30	10.90	10.50
7, ...	....	11.80	9.95	10.65	11.95	10.30	10.55	10.45
8, ...	....	12.80	10.85	10.55	11.20	10.20	10.40	10.50
9, ...	....	12.40	11.20	10.35	10.95	10.30	10.35	10.55
10, ...	....	12.10	11.05	10.20	10.65	10.25	10.40	10.55
11, ...	....	11.80	11.10	10.15	10.45	10.20	10.35	10.60
12, ...	....	11.80	11.35	10.10	10.30	10.30	10.30	10.55
13, ...	....	11.55	11.90	10.10	10.30	10.20	10.15	10.35
14, ...	....	11.25	11.75	10.40	10.30	10.15	10.25	10.30
15, ...	....	11.10	11.55	10.45	10.60	10.35	10.65	10.30
16, ...	....	11.10	11.25	10.35	12.00	10.40	10.40	10.10
17, ...	....	11.20	11.05	10.10	11.60	10.55	10.65	10.10
18, ...	14.10	11.10	10.75	10.10	10.95	10.45	10.95	10.10
19, ...	12.95	11.00	10.55	10.10	10.55	10.50	12.30	10.30
20, ...	12.15	10.90	10.40	10.00	10.25	10.60	11.50	*14.55
21, ...	11.65	10.75	10.40	10.40	10.15	10.50	11.05	12.40
22, ...	11.40	10.70	10.25	11.65	10.00	10.60	10.80	13.05
23, ...	11.05	10.60	10.50	16.45	9.85	10.50	10.65	13.05
24, ...	11.00	10.65	11.10	14.45	9.55	10.35	10.75	12.10
25, ...	11.00	10.60	11.85	12.65	9.15	10.50	10.80	11.30
26, ...	12.40	10.70	11.85	11.75	9.35	10.30	10.85	10.90
27, ...	12.05	11.45	11.30	11.25	9.35	10.20	10.80	10.55
28, ...	11.70	11.65	11.80	10.95	9.40	10.10	10.85	10.55
29, ...	....	11.55	14.00	10.80	9.35	10.10	10.70	10.48
30, ...	....	11.30	14.50	13.75	9.85	10.15	11.50	10.50
31, ...	....	11.15	....	†19.13	....	9.80	12.05	....

Notes.—†Maximum 19.6 ft. at 6 A. M. ‡Maximum 17.9 ft. at 12.01 A. M. from hydrograph. *Maximum 15.1 ft. at 8 A. M.

OHIO BASIN—STATION NO. 24.

YOUGHIOGHENY RIVER AT CONFLUENCE, PA.

DESCRIPTION OF STATION.

LOCATION—At two span, steel, through-truss, highway bridge, about ½ mile from Confluence, Somerset County.

RECORDS AVAILABLE—Discharge complete from September 15, 1904, to September 30, 1914, and gage heights October 1, 1914, to September 30, 1915. For other records on this river, see Youghiogheny River at Connellsville and Sutersville; also Youghiogheny River at Friendsville, Md., in the 1910-11 Report of the Water Supply Commission.

DRAINAGE AREA—435 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge, and is read once daily by L. L. Mountain.

CHANNEL—The right bank is high and does not overflow, the left bank is low, clean and overflows during high stages, and the bed is rocky.

REMARKS—There is a small cobblestone dam 4 to 6 inches high under the bridge.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF YOUGHIOGHENY RIVER AT CONFLUENCE, SOMERSET COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.45	1.80	1.79	4.79	6.68	2.98	2.77	3.02	4.77	1.96	1.96	2.11
2,	1.40	1.70	3.09	3.99	10.48	2.88	2.67	2.92	5.57	2.26	1.91	2.06
3,	1.40	1.65	2.89	3.39	7.58	2.78	2.62	2.82	6.77	2.11	1.86	1.96
4,	1.40	1.60	2.64	3.04	5.43	2.73	2.52	2.67	5.22	2.01	2.46	1.91
5,	1.40	1.55	2.59	2.79	4.88	2.68	2.47	2.87	4.22	1.96	2.21	2.26
6,	1.40	1.50	3.24	2.99	4.43	2.63	2.52	2.67	3.72	2.11	2.06	2.21
7,	1.40	1.80	2.99	11.23	4.13	2.68	2.72	2.62	3.42	2.01	1.91	2.11
8,	1.40	1.65	3.09	6.29	3.78	2.68	2.72	2.57	3.22	1.96	1.81	2.01
9,	1.40	1.55	3.04	4.74	3.48	2.58	2.67	2.47	3.07	1.91	1.86	1.86
10,	1.40	1.50	2.99	4.04	3.33	2.63	2.62	2.42	2.87	1.91	2.16	1.76
11,	1.50	1.50	2.94	3.54	3.23	2.93	2.82	2.37	2.72	1.96	1.96	1.76
12,	1.60	1.50	2.79	3.54	3.53	2.78	3.07	2.37	2.72	1.96	1.91	2.01
13,	1.55	1.50	2.64	3.34	4.68	2.88	2.97	2.92	2.67	1.91	2.16	2.26
14,	1.75	1.50	2.64	3.09	5.38	2.93	2.87	2.82	2.62	1.86	2.06	2.26
15,	1.65	1.65	2.54	3.24	9.88	2.98	2.77	2.77	3.02	1.91	1.96	1.96
16,	1.75	2.15	2.49	3.44	6.73	3.28	2.72	2.62	2.77	2.01	1.86	1.91
17,	2.20	2.55	2.44	4.49	5.13	3.18	2.52	2.92	2.62	2.21	1.96	1.86
18,	2.05	2.25	2.59	7.69	4.78	2.98	2.62	2.77	2.47	2.16	2.06	2.16
19,	1.90	2.00	2.69	9.09	3.93	2.93	2.52	2.67	2.32	2.06	1.91	2.36
20,	1.90	1.95	3.69	6.19	3.43	2.83	2.47	2.57	2.27	2.01	1.86	2.26
21,	1.90	1.90	6.24	4.64	2.98	2.78	2.47	4.47	2.22	2.06	1.86	2.21
22,	1.80	2.00	5.89	4.44	3.48	2.68	2.42	7.82	2.17	2.01	2.06	2.16
23,	1.70	1.90	4.79	4.19	3.28	2.63	3.22	6.37	2.07	1.91	2.41	2.26
24,	1.70	1.90	3.99	3.89	3.18	2.58	3.07	5.77	1.97	1.86	2.36	2.16
25,	1.65	1.90	3.69	3.54	3.13	2.63	2.82	5.17	1.97	1.86	2.36	2.11
26,	1.65	1.75	3.19	3.34	3.08	3.93	2.67	4.67	1.92	1.81	2.21	2.11
27,	1.60	1.75	2.94	3.19	3.08	3.88	2.57	3.57	1.87	1.81	2.16	2.36
28,	1.60	1.75	2.84	2.99	3.03	3.78	2.97	2.22	1.82	1.86	2.06	2.81
29,	1.55	1.75	2.94	2.79	....	3.13	3.42	3.22	1.77	1.86	1.96	2.21
30,	1.55	1.80	5.69	2.79	....	2.98	3.22	5.77	1.72	1.91	2.21	2.11
31,	1.60	....	5.39	2.94	....	2.88	....	5.82	....	1.96	2.16	....

OHIO BASIN—STATION NO. 25.

CASSELMAN RIVER AT MARKLETON, PA.

DESCRIPTION OF STATION.

LOCATION—At two span, through-truss, highway bridge at B. & O. Railroad Station, Markleton, Somerset County.

RECORDS AVAILABLE—Discharge measurements and gage heights from August 13, 1913, to December 31, 1913, and from June 13, 1914, to September 30, 1915. For other records on this river, see Casselman River at Confluence in the 1911 to 1913 reports of the Water Supply Commission.

DRAINAGE AREA—365 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge and is read twice daily by C. O. Burns.

CHANNEL—Both banks are high and do not overflow, and the bed is composed of gravel and boulders.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF CASSELMAN RIVER AT MARKLETON, SOMERSET COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.71	2.01	2.25	3.45	4.74	3.57	3.10	3.36	4.32	2.92	3.14	2.78
2,	1.71	2.01	2.58	3.22	7.84	3.41	3.00	3.28	5.52	2.75	2.96	2.64
3,	1.71	2.01	2.60	3.08	5.74	3.34	2.90	3.13	6.97	2.99	2.86	2.48
4,	1.71	1.99	2.68	3.05	4.81	3.21	2.86	3.20	5.77	2.82	†3.98	2.46
5,	1.71	1.97	2.55	2.98	4.39	3.14	2.88	3.38	4.92	2.82	3.51	2.46
6,	1.71	1.96	2.50	2.92	4.29	3.05	2.93	3.23	4.32	2.77	3.04	2.41
7,	1.71	1.96	2.55	3.00	4.01	3.17	3.26	3.10	4.05	2.57	2.81	2.41
8,	1.71	1.96	2.72	5.40	3.77	3.01	3.20	3.10	3.87	2.55	2.66	2.36
9,	1.96	1.96	2.85	4.40	3.54	2.87	3.06	3.00	3.65	2.67	2.74	2.31
10,	2.33	1.96	2.87	3.98	3.39	2.89	3.03	2.90	3.42	2.52	2.64	2.26
11,	2.31	1.96	2.78	3.72	3.37	2.97	3.10	2.80	3.25	2.67	2.48	2.41
12,	2.31	1.96	2.70	3.52	4.47	3.01	3.28	2.83	3.17	3.22	2.46	2.68
13,	2.23	1.94	2.62	3.52	5.54	2.99	3.63	3.00	3.27	2.92	2.78	2.46
14,	2.21	1.94	2.55	3.28	5.87	3.29	3.38	2.93	3.35	2.62	2.61	2.34
15,	2.21	1.99	2.60	3.38	7.84	3.61	3.18	2.83	3.17	2.55	2.48	2.26
16,	2.46	2.53	2.66	3.28	6.24	3.71	3.06	2.83	2.95	2.59	2.44	2.21
17,	2.66	2.61	2.75	3.48	5.07	3.54	3.03	3.06	2.87	2.72	2.36	2.16
18,	2.49	2.36	2.75	5.65	4.54	3.41	2.98	3.00	2.82	2.59	2.31	2.38
19,	2.31	1.96	2.75	6.65	4.14	3.29	2.91	2.86	2.72	2.52	2.26	3.71
20,	2.26	1.91	3.55	5.15	3.89	3.21	2.93	2.80	2.65	2.47	2.21	3.16
21,	2.21	2.01	4.30	4.48	3.74	3.07	2.98	4.68	2.57	2.47	2.34	3.14
22,	2.15	2.01	3.88	3.85	3.81	3.04	2.94	5.58	2.57	2.72	2.81	2.91
23,	2.09	2.11	3.40	3.95	3.84	3.04	3.20	5.98	2.55	2.49	2.78	2.74
24,	2.06	2.11	3.20	3.92	4.67	3.09	3.66	5.13	2.55	2.92	2.54	2.54
25,	2.03	2.11	3.15	3.70	5.01	3.07	3.38	4.53	2.47	2.62	2.44	2.46
26,	2.01	2.11	3.12	3.50	4.44	3.39	3.16	4.08	2.37	2.49	2.36	2.41
27,	2.01	2.11	3.10	3.50	3.97	3.47	3.08	3.80	2.41	2.47	2.28	2.78
28,	2.01	2.11	3.10	3.42	3.77	3.31	3.58	3.60	2.39	2.35	2.41	2.68
29,	2.01	2.11	3.15	3.35	....	3.29	3.78	3.58	2.35	2.37	3.58	2.51
30,	2.01	2.13	4.30	3.30	....	3.21	3.56	4.30	2.49	2.45	3.11	2.41
31,	2.01	....	4.05	3.32	....	3.17	....	4.98	....	2.72	2.94	....

Note.—†Maximum 4.8 ft. at 10 P. M. from hydrograph.

OHIO BASIN—STATION NO. 26.

LAUREL HILL CREEK AT URSINA, PA.

DESCRIPTION OF STATION.

LOCATION—At two span, steel, through-truss, highway bridge at Ursina, Somerset County.

RECORDS AVAILABLE—Discharge measurements and gage heights from August 12, 1913, to September 30, 1915. For other records on this creek, see Laurel Hill Creek at Confluence in the 1911 to 1913 reports of the Water Supply Commission.

DRAINAGE AREA—122 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the upstream side of the bridge and is read twice daily by A. J. Case.

CHANNEL—Both banks are high and not subject to overflow, and the bed is composed of gravel and stones.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF LAUREL HILL CREEK AT URSINA, SOMERSET COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.65	1.80	1.94	2.89	3.78	2.63	2.37	2.32	3.26	2.16	1.75	1.90
2,	1.65	1.80	2.27	2.64	5.43	2.48	2.27	2.27	3.46	2.06	1.95	1.85
3,	1.60	1.80	2.21	2.44	4.58	2.38	2.27	2.27	4.11	2.26	1.95	1.83
4,	1.65	1.78	2.09	2.39	3.68	2.38	2.27	2.29	3.81	2.01	1.90	1.77
5,	1.62	1.70	2.09	2.29	3.23	2.33	2.27	2.52	3.31	1.96	1.90	1.75
6,	1.60	1.70	2.09	2.44	3.08	2.28	2.27	2.47	2.91	1.96	1.90	1.83
7,	1.60	1.70	2.14	†6.59	2.93	2.28	2.52	2.37	2.66	1.96	1.83	1.80
8,	1.62	1.70	2.34	4.74	2.78	2.28	2.52	2.37	2.56	1.91	1.75	1.75
9,	1.70	1.75	2.31	3.39	2.63	2.28	2.47	2.22	2.41	1.86	1.75	1.75
10,	1.70	1.78	2.39	2.99	2.48	2.18	2.47	2.27	2.31	1.86	1.75	1.75
11,	1.80	1.70	2.29	2.69	2.48	2.28	2.47	2.22	2.26	1.91	1.75	1.75
12,	1.85	1.75	2.29	2.69	2.88	2.33	2.47	2.25	2.21	2.31	1.75	2.25
13,	1.88	1.70	2.14	2,54	4.03	2.23	2.72	2.22	2.21	2.08	1.85	2.00
14,	1.90	1.70	2.27	2.54	4.23	2.43	2.39	2.17	2.26	2.26	1.85	1.90
15,	1.90	1.82	*2.39	2.49	5.43	2.53	2.42	2.17	2.16	1.96	1.80	1.85
16,	2.10	2.40	2.29	2.49	4.53	2.73	2.37	2.17	2.16	1.96	1.75	1.80
17,	2.10	2.25	2.44	2.51	3.73	2.58	2.35	2.27	2.01	2.01	1.75	1.77
18,	1.90	2.06	2.39	3.59	3.23	2.53	2.27	2.12	1.96	1.96	1.75	1.90
19,	1.90	1.90	2.54	4.29	2.93	2.48	2.25	2.07	1.96	1.91	1.70	2.45
20,	1.90	1.90	3.19	3.64	2.73	2.38	2.25	2.02	2.01	1.78	1.70	2.10
21,	1.82	1.80	3.41	3.14	2.73	2.28	2.22	‡3.92	1.96	1.84	1.75	2.05
22,	1.80	1.80	3.64	2.89	2.78	2.23	2.17	4.37	1.91	1.81	1.75	1.95
23,	1.80	1.85	3.34	2.79	2.78	2.28	2.57	4.57	1.91	1.81	2.00	1.90
24,	1.80	1.78	3.09	2.69	3.58	2.33	2.59	3.72	1.91	1.86	1.75	1.85
25,	1.78	1.75	2.89	2.64	3.63	2.43	2.57	3.17	1.88	1.76	1.80	1.85
26,	1.78	1.85	2.69	2.54	3.23	3.03	2.47	2.82	1.88	1.71	1.75	1.85
27,	1.75	1.85	1.84	2.54	2.78	2.73	2.37	2.67	1.88	1.76	1.75	2.25
28,	1.80	1.78	2.59	2.49	2.73	2.58	2.39	2.47	1.84	1.76	1.90	2.00
29,	1.80	1.85	2.49	2.29	....	2.53	2.57	2.42	1.81	1.76	2.13	1.90
30,	1.75	1.80	3.24	3.24	....	2.43	2.42	3.27	1.91	1.88	2.00	1.85
31,	1.82	....	3.04	2.29	....	2.38	....	3.55	....	1.86	2.00	....

Notes.—*Creek frozen December 15 to 21, 1914. †Maximum 6.99 ft. at 8 A. M. ‡Maximum 4.77 ft. at 5 P. M.

OHIO BASIN—STATION NO. 27.

YOUGHIOGHENY RIVER AT CONNELLSVILLE, PA.

DESCRIPTION OF STATION.

LOCATION—At two span, steel, through-truss, highway bridge between Connellsville and New Haven.

RECORDS AVAILABLE—Discharge complete from July 22, 1908, to September 30, 1915. For other records on this river see Youghiogheny River at Confluence and Sutersville; also Youghiogheny River at Friendsville, Md., in the 1910-11 Report of the Water Supply Commission.

DRAINAGE AREA—1,320 square miles.

GAGE—A standard chain gage, whose elevation of zero is 860.131 feet above mean sea level, is located on the downstream side of the New Haven span, and is read twice daily by the West Penn Railways Company.

CHANNEL—Both banks are high and not subject to overflow and the bed is composed of rocks, gravel and mud.

DISCHARGE MEASUREMENT OF YOUGHIOGHENY RIVER AT CONNELLSVILLE, FAYETTE COUNTY, PA.

(Drainage area 1,320 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec. ft.	
23	Sept. 29	Wilson & Shade, ...	818	1.67	702	0.6 method.

DISCHARGE TABLE FOR YOUGHIOGHENY RIVER AT CONNELLSVILLE, FAYETTE COUNTY, PA., FROM JANUARY 1, 1914.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
0.00	35	.70	1715	.40	6590	.10	14530	.80	25000
.10	40	.80	1855	.50	6820	.20	14860	.90	25440
.20	50	.90	2000	.60	7050	.30	15200	11.00	25880
.30	60	3.00	2145	.70	7280	.40	15560	.10	26320
.40	75	.10	2305	.80	7520	.50	15920	.20	26760
.50	90	.20	2470	.90	7780	.60	16290	.30	27200
.60	115	.30	2640	6.00	8040	.70	16660	.40	27650
.70	140	.40	2810	.10	8300	.80	17030	.50	28100
.80	180	.50	2980	.20	8580	.90	17400	.60	28550
.90	220	.60	3150	.30	8860	9.00	17770	.70	29000
1.00	270	.70	3325	.40	9150	.10	18140	.80	29470
.10	325	.80	3500	.50	9450	.20	18510	.90	29960
.20	380	.90	3680	.60	9750	.30	18890	12.00	30450
.30	440	4.00	3860	.70	10055	.40	19270	.10	30950
.40	500	.10	4040	.80	10360	.50	19650	.20	31450
.50	570	.20	4220	.90	10665	.60	20040	.30	31950
.60	640	.30	4400	7.00	10970	.70	20440	.40	32450
.70	710	.40	4580	.10	11280	.80	20840	.50	32950
.80	790	.50	4770	.20	11590	.90	21240	.60	33500
.90	870	.60	4960	.30	11910	10.00	21640	.70	34050
2.00	960	.70	5155	.40	12230	.10	22040	.80	34600
.10	1050	.80	5350	.50	12550	.20	22450	.90	35150
.20	1145	.90	5545	.60	12880	.30	22860	13.00	35700
.30	1250	5.00	5740	.70	13210	.40	23270	.10	36250
.40	1360	.10	5950	.80	13540	.50	23690	.20	36850
.50	1470	.20	6160	.90	13870	.60	24120		
.60	1590	.30	6370	8.00	14200	.70	24560		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF YOUGHIOGHENY RIVER AT CONNELLSVILLE, FAYETTE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.44	0.76	0.89	3.93	6.18	3.05	2.56	3.06	5.31	1.40	1.35	2.12
2,	0.39	0.84	1.29	3.75	11.43	2.83	2.43	2.76	4.41	1.88	1.62	1.78
3,	0.40	0.82	2.22	3.41	9.63	2.68	2.31	2.51	7.41	2.00	1.48	1.58
4,	0.29	0.72	2.16	3.11	6.78	2.53	2.19	2.56	6.51	1.92	1.70	1.45
5,	0.36	0.66	1.94	2.41	5.48	2.48	2.09	2.86	5.26	1.72	2.68	1.32
6,	0.36	0.62	2.22	2.38	5.28	2.68	2.16	2.71	4.39	1.62	1.92	1.18
7,	0.32	0.59	2.54	‡11.56	4.88	2.58	2.39	2.51	3.83	1.62	1.55	1.22
8,	0.34	0.62	2.56	8.05	4.23	2.61	2.61	2.43	3.46	1.42	1.35	1.18
9,	0.34	0.72	2.64	5.68	3.78	2.38	2.46	2.39	3.11	1.30	1.20	1.15
10,	0.34	0.69	2.59	4.43	3.31	2.33	2.36	2.19	2.76	1.30	1.40	1.08
11,	0.42	0.59	2.49	3.85	3.23	2.58	2.41	2.01	2.51	1.35	1.38	1.00
12,	0.74	0.59	2.22	4.08	3.68	2.68	2.66	2.13	2.46	1.65	1.20	1.15
13,	0.72	0.54	1.99	3.68	6.03	2.45	3.41	2.49	2.43	1.90	1.12	1.42
14,	0.79	0.52	1.66	3.28	7.58	2.63	3.19	2.69	2.59	1.50	1.30	1.15
15,	0.89	0.56	1.29	3.48	8.98	2.95	2.86	2.36	2.81	1.38	1.30	1.02
16,	0.94	0.84	1.14	3.68	8.33	3.33	2.63	2.16	2.39	1.40	1.15	0.85
17,	1.16	1.96	1.34	3.83	6.28	3.41	2.49	2.49	2.13	1.68	0.98	0.82
18,	1.56	1.74	1.46	7.01	5.13	3.11	2.39	2.53	1.89	1.58	0.90	0.98
19,	1.29	1.39	1.56	9.33	4.41	2.91	2.29	2.39	1.71	1.50	1.05	1.92
20,	1.09	1.14	1.86	7.23	3.88	2.81	2.16	2.21	1.66	1.35	1.15	3.10
21,	1.04	‖1.08	†5.56	5.53	3.58	2.58	2.21	4.51	1.61	1.35	1.00	2.18
22,	1.02	1.02	6.74	4.58	3.38	2.51	2.21	6.61	1.51	1.50	1.12	2.38
23,	0.86	0.82	4.69	4.23	3.31	2.43	2.71	*8.36	1.46	1.38	1.62	2.10
24,	0.84	0.62	3.89	4.23	3.78	2.41	3.71	6.36	1.41	1.25	1.60	1.70
25,	0.79	0.89	2.54	3.91	5.15	2.45	3.29	5.21	1.31	1.45	1.52	1.45
26,	0.76	0.89	2.14	3.61	4.33	3.68	2.96	4.86	1.31	1.18	1.32	1.88
27,	0.74	0.86	1.86	3.31	3.73	3.88	2.73	3.79	1.21	1.15	1.35	1.58
28,	0.72	0.74	1.99	3.08	3.23	3.31	2.86	3.46	1.21	1.10	1.72	1.75
29,	0.69	0.76	1.99	2.53	....	3.13	3.66	3.11	1.16	1.10	2.38	1.56
30,	0.72	0.84	2.79	2.18	....	2.95	3.41	4.19	1.13	1.09	2.65	1.35
31,	0.69	....	5.19	2.73	....	2.78	....	6.59	....	1.10	2.35	....

Notes.—†Maximum 7.54 ft. at 4:45 p. m. ‡Maximum 12.13 ft. at 1 p. m. *Maximum 9.81 ft. at 8 p. m. from hydrograph. ‖Interpolated.

DAILY DISCHARGE, IN SECOND-FEET, OF YOUGHIOGHENY RIVER AT CONNELLSVILLE, FAYETTE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	81	164	216	3730	8380	2220	1540	2240	6390	500	470	1070
2,	74	196	434	3410	27800	1900	1390	1800	4600	854	654	774
3,	75	188	1170	2830	20200	1690	1260	1480	12300	960	556	626
4,	59	148	1110	2320	10300	1510	1140	1540	9480	888	710	585
5,	69	130	906	1370	6770	1450	1040	1940	6290	726	1690	452
6,	69	120	1170	1340	6330	1570	1110	1730	4560	654	888	369
7,	68	112	1520	‡28400	5510	1570	1350	1480	3550	654	605	392
8,	66	120	1540	14400	4270	1600	1600	1390	2910	514	470	369
9,	66	148	1[illegible]40	7230	3460	1340	1430	1350	2320	440	380	352
10,	66	138	1580	4640	2660	1280	1320	1140	1800	440	500	314
11,	78	112	1460	3590	2520	1570	1370	969	1480	470	488	270
12,	156	112	1170	4000	3290	1690	1660	1080	1430	675	380	352
13,	148	100	951	8290	8120	1420	2830	1460	1390	870	336	514
14,	176	95	682	2610	12800	1630	2450	1700	1580	570	440	352
15,	216	105	434	2950	17700	2070	1940	1320	1870	488	440	281
16,	240	196	347	3290	15800	2690	1630	1110	1350	500	352	200
17,	358	924	464	3550	8800	2830	1460	1460	1080	696	260	188
18,	612	742	542	11000	6010	2320	1350	1510	862	626	220	260
19,	434	494	612	19000	4600	2010	1240	1350	718	570	298	888
20,	320	347	838	11700	3640	1870	1110	1160	682	470	352	2300
21,	292	314	†6960	6890	8120	1570	1160	4790	647	470	270	1130
22,	281	281	10200	4920	2780	1480	1160	9780	577	570	336	1340
23,	204	188	5140	4270	2660	1390	1730	*15400	542	488	654	1050
24,	196	120	2790	4270	3460	1370	3340	9030	507	410	640	710
25,	176	216	1520	3700	6060	1420	2620	6180	446	535	584	585
26,	164	216	1090	3170	4450	3290	2090	4510	446	369	452	488
27,	156	204	838	2660	3380	3640	1760	3480	386	352	470	626
28,	148	156	951	2270	2520	2660	1940	2910	386	380	726	750
29,	138	164	951	1510	....	2350	3260	2320	358	325	1340	612
30,	148	196	1840	1130	....	2070	2830	4200	342	270	1650	470
31,	138	....	6140	1760	....	1830	....	9720	....	325	1300	....

Notes.—†Maximum=12700 sec.-ft. ‡Maximum=31100 sec.-ft. *Maximum=20900 sec.-ft.

ESTIMATED MONTHLY DISCHARGE OF YOUGHIOGHENY RIVER AT CONNELLSVILLE, FAYETTE COUNTY, PA.

(Drainage area 1,320 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	612	59	177	0.14	0.16
November,	924	95	225	0.17	0.19
December,	12700	216	1850	1.40	1.61
1915.					
January,	31100	1130	5520	4.18	4.82
February,	27800	2520	7390	5.60	5.83
March,	3640	1280	1910	1.45	1.67
April,	3340	1040	1740	1.32	1.47
May,	20900	969	3280	2.48	2.86
June,	12300	342	2380	1.80	2.01
July,	960	270	550	0.42	0.48
August,	1690	220	610	0.46	0.53
September,	2300	188	619	0.47	0.52
The year,	31100	59	2190	1.66	22.15

OHIO BASIN—STATION NO. 28.

YOUGHIOGHENY RIVER AT SUTERSVILLE, PA.

DESCRIPTION OF STATION.

LOCATION—At three span, steel, through-truss, county highway bridge at lower end of Sutersville, Westmoreland County.

RECORDS AVAILABLE—Discharge measurements and gage heights June 11 to September 30, 1915. For other records on this river see Youghiogheny River at Confluence and Connellsville; also Youghiogheny River at Friendsville, Md., in the 1910-11 Report of the Water Supply Commission.

DRAINAGE AREA—1,680 square miles.

GAGE—A standard chain gage, whose elevation of zero is 733.141 feet above mean sea level, is located on the downstream side of the bridge and is read twice daily by Archie W. McGrew.

CHANNEL—The right bank is low and overflows. The left bank is high and overflows at extreme stages, and the bed is generally rocky with shifting bars of sand and gravel.

REMARKS—This station is maintained in co-operation with the U. S. Engineer Office in Pittsburgh.

DISCHARGE MEASUREMENTS OF YOUGHIOGHENY RIVER AT SUTERSVILLE, WESTMORELAND COUNTY, PA.

(Drainage area 1,680 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec. ft.	
1	June 9	Inglefield, ...	1881	5.03	2695	0.2 and 0.8 method.
2	Sept. 28	Wilson & Shade, ...	1088	3.29	641	0.6 method.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF YOUGHIOGHENY RIVER AT SUTERSVILLE, WESTMORELAND COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	JUNE.	JULY.	AUG.	SEPT.
1,	....	3.01	3.15	4.02
2,	....	3.41	3.43	3.64
3,	....	3.86	3.29	3.37
4,	....	3.99	4.56	3.20
5,	....	3.77	4.21	3.12
6,	....	3.53	4.00	3.06
7,	....	3.48	3.53	3.01
8,	....	3.26	3.27	2.89
9,	....	3.13	3.14	2.96
10,	....	3.11	3.04	2.88
11,	4.35	3.23	3.15	2.84
12,	4.21	3.41	3.11	2.84
13,	4.18	3.92	2.95	3.04
14,	4.28	3.41	2.95	3.06
15,	4.46	3.27	3.03	2.83
16,	4.26	3.31	2.97	2.82
17,	3.95	3.30	2.91	2.80
18,	3.74	3.41	2.82	2.79
19,	3.58	3.33	2.78	3.24
20,	3.48	3.18	2.88	4.43
21,	3.34	3.03	2.88	4.08
22,	3.26	3.13	2.81	3.75
23,	3.22	3.13	3.03	4.03
24,	3.24	3.04	3.41	3.55
25,	3.10	2.91	3.29	3.29
26,	3.02	3.01	3.11	3.21
27,	2.96	2.93	3.01	3.27
28,	2.92	2.85	3.11	3.30
29,	2.90	2.85	3.29	3.38
30,	3.00	3.19	4.63	3.26
31,	....	2.93	4.18	....

OHIO BASIN—STATION NO. 29.

TURTLE CREEK NEAR TRAFFORD, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, highway bridge at Blackburn Station, near Trafford, Westmoreland County.

RECORDS AVAILABLE—Discharge measurements and gage heights from July 28 to September 30, 1914, and discharge measurements from October 1, 1914, to September 30, 1915. For other records on this creek, see Turtle Creek at East Pittsburgh in the 1911 to 1914 reports of the Water Supply Commission, and also under "Miscellaneous Discharge Measurements" in this report.

DRAINAGE AREA—55 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge, and is read twice daily by Ira Blystone.

CHANNEL—Both banks are high and not subject to overflow and the bed is composed of gravel and hardpan.

DISCHARGE MEASUREMENTS OF TURTLE CREEK NEAR TRAFFORD, WESTMORELAND COUNTY, PA.

(Drainage area 55 square miles)

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1914.		Sq. ft.	Feet.	Sec. ft.	
2	Dec. 9	Taylor, ...	72	1.40	97	0.6 method.
3	Dec. 9	Taylor, ...	72	1.40	96	0.6 method.

NOTE—Owing to the gage heights at this station being unreliable, they have not been published and only the discharge measurements are furnished herewith.

OHIO BASIN—STATION NO. 30.

BRUSH CREEK NEAR TRAFFORD, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge between Cavettsville and Trafford, Westmoreland County.

RECORDS AVAILABLE—Discharge measurements and gage heights July 14, 1914, to September 30, 1915.

DRAINAGE AREA—56 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge and is read twice daily by Paul Stoy.

CHANNEL—Both banks overflow at gage height 8 feet, and the bed is composed of gravel and hardpan.

DISCHARGE MEASUREMENTS OF BRUSH CREEK NEAR TRAFFORD, WESTMORELAND COUNTY, PA.

(Drainage area 56 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1914.		Sq. ft.	Feet.	Sec. ft.	
2	Dec. 9	Taylor, ...	75	2.62	132	0.6 method.
3	Dec. 9	Taylor, ...	75	2.61	129	0.6 method.
	1915.					
4	Sept. 25	Wilson & Shade, ...	37	1.93	16	0.6 method.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF BRUSH CREEK NEAR TRAFFORD, WESTMORELAND COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.83	1.84	2.04	2.38	5.75	2.24	2.10	2.04	2.65	2.26	2.08	1.96
2,	1.82	1.82	2.22	2.34	5.52	2.26	2.06	2.01	2.54	2.58	2.05	1.95
3,	1.82	1.85	2.10	2.38	3.60	2.12	2.07	2.04	2.72	2.71	2.26	1.98
4,	1.82	1.84	2.10	2.23	3.18	2.21	2.05	2.04	2.56	2.46	4.10	1.97
5,	1.84	1.83	2.04	2.15	2.98	2.17	2.08	2.02	2.41	2.80	2.68	1.96
6,	1.86	1.83	2.01	2.26	3.08	2.32	2.09	2.01	2.41	2.39	2.48	1.96
7,	1.82	1.82	2.72	3.28	2.78	2.48	2.10	1.99	2.30	2.32	2.35	1.97
8,	1.82	1.84	2.78	2.42	2.75	2.39	2.10	1.98	2.40	2.38	2.36	2.00
9,	1.84	1.84	2.50	2.29	2.72	‖2.36	2.10	1.96	2.28	2.26	‖2.31	2.01
10,	1.92	1.84	2.29	2.24	2.58	‖2.34	2.07	1.96	2.24	2.26	‖2.25	2.01
11,	1.88	1.84	2.67	2.64	2.68	2.32	2.07	1.96	2.24	2.37	2.20	2.01
12,	1.85	1.86	2.42	2.87	2.71	2.29	2.08	1.97	2.24	2.36	2.19	1.99
13,	2.24	1.85	2.44	3.26	2.74	2.29	2.12	1.94	2.52	2.25	2.16	1.97
14,	2.03	1.84	2.45	2.62	2.76	2.28	2.10	1.97	2.41	2.14	2.14	1.98
15,	1.94	1.86	2.36	2.75	2.69	2.28	2.10	1.94	2.48	2.25	2.08	2.00
16,	2.04	1.94	2.34	2.67	2.60	2.29	2.10	2.00	2.33	2.38	2.16	1.97
17,	1.93	1.95	2.34	3.12	2.62	2.30	2.06	1.97	2.33	2.22	2.07	1.92
18,	1.87	1.94	2.37	3.85	2.50	2.30	2.06	1.93	2.26	2.14	2.03	1.94
19,	1.91	1.92	2.55	3.92	2.40	2.22	2.02	1.90	2.22	2.10	2.04	2.15
20,	1.88	1.92	†3.61	3.95	2.40	2.20	2.02	1.94	2.14	2.12	2.12	2.14
21,	1.86	1.96	3.38	3.70	2.42	2.18	2.00	2.30	2.12	2.10	2.16	2.08
22,	1.85	1.98	3.42	3.65	2.38	2.20	1.98	2.87	2.12	2.06	2.14	2.05
23,	1.86	1.96	2.69	3.68	2.40	2.18	2.28	2.72	2.12	2.08	2.05	2.01
24,	1.82	1.94	2.58	3.68	2.39	2.20	2.11	2.85	2.09	2.06	2.04	1.96
25.	1.84	1.85	2.82	2.72	2.40	2.18	2.10	2.88	2.08	2.03	2.02	1.93
26,	1.86	1.84	2.34	2.64	2.38	2.19	2.05	2.58	2.30	2.06	2.00	1.98
27,	1.85	1.79	2.44	2.66	2.36	2.15	2.08	2.29	2.09	2.02	2.01	1.97
28,	1.85	1.82	2.39	2.62	2.31	2.16	2.14	2.24	2.08	2.04	2.04	1.98
29,	1.89	1.82	2.49	2.56	....	2.18	2.14	2.70	2.02	2.06	2.03	1.97
30,	1.86	1.82	2.52	2.48	....	2.16	2.06	2.98	2.50	2.45	2.01	1.96
31,	1.84	....	2.44	2.75	....	2.16	....	2.90	....	2.14	2.00	....

Notes.—†Maximum 4.12 ft. at 7 a. m. ‖Interpolated.

CHARTIERS CREEK.

SOURCE—In south central Washington County, elevation 1,300 feet.

TRIBUTARY TO—Ohio River at McKees Rocks, elevation 703 feet.

LENGTH—49 miles.

PROFILE—Rate of fall uniform from elevation 1,100 to mouth, 47 miles, 8.4 feet per mile.

DRAINAGE AREA—278 square miles.

TOPOGRAPHY AND DEVELOPMENT—The stream flows through broken and hilly country, the valleys eroded in an ancient plateau and bordered by hills 300 to 400 feet high. The main valley is irregular and varies in width from narrow gorges to flats one mile wide.

The industries include extensive mining of coal, numerous iron and steel works of the Pittsburgh district, oil and gas production and farming. Among the many towns in the watershed are McKees Rocks, Carnegie, Ingram, Crafton, Canonsburg, Washington and part of Pittsburgh. Near the mouth the stream is used for industrial supply, while the headwaters at Washington and a tributary at Canonsburg are used for domestic supply.

PRINCIPAL TRIBUTARIES—Little Chartiers Creek, Millers and Robinsons runs.

PRECIPITATION—35 to 40 inches annually.

HYDROGRAPHIC DATA—At Carnegie from June, 1915, to date.

OHIO BASIN—STATION NO. 31.

CHARTIERS CREEK AT CARNEGIE, PA.

DESCRIPTION OF STATION.

LOCATION—At two single span, steel, through-truss, railroad bridges of the P. C. C. & St. L. Railroad, Chartiers Branch, known as Bridge No. 1 and Freight House Bridge, Carnegie, Allegheny County.

RECORDS AVAILABLE—Discharge measurements and gage heights from June 5 to September 30, 1915.

DRAINAGE AREA—260 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the upstream side of the Freight House Bridge, and is read twice daily by Richard Musiol.

CHANNEL—Both banks are high and not subject to overflow, and the bed is soft and sewage covered in pools, but at the riffles is rocky and slag covered.

REMARKS—This station is maintained in co-operation with the U. S. Engineer Office in Pittsburgh.

DISCHARGE MEASUREMENTS OF CHARTIERS CREEK AT CARNEGIE, ALLEGHENY COUNTY, PA.

(Drainage area 260 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec. ft.	
1	June 5	Inglefield, ...	151	2.69	329	Wading msmt. about 300 ft. below gage; 0.2 and 0.8 method.
2	Sept. 24	Wilson & Shade, ...	42	1.27	27	Surface measurement.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF CHARTIERS CREEK AT CARNEGIE, ALLEGHENY COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	JUNE.	JULY.	AUG.	SEPT.
1,	....	2.83	1.98	1.55
2,	....	2.64	3.15	1.52
3,	....	2.90	2.90	1.51
4,	....	2.48	2.40	1.48
5,	2.58	2.50	2.16	1.52
6,	2.38	2.28	2.00	1.53
7,	2.29	2.08	1.95	1.52
8,	2.28	2.18	2.10	1.54
9,	2.11	2.08	2.06	1.55
10,	2.01	1.92	1.82	1.62
11,	1.94	1.94	1.76	1.64
12,	2.04	2.30	1.81	1.47
13,	4.70	1.99	1.75	1.39
14,	3.35	1.86	1.70	1.35
15,	2.86	2.02	1.62	1.30
16,	2.67	3.55	1.56	1.28
17,	2.38	2.76	1.54	1.27
18,	2.25	2.31	1.60	1.30
19,	2.17	2.09	1.52	1.81
20,	2.08	1.95	1.52	1.72
21,	1.99	1.92	1.65	1.52
22,	1.96	1.88	1.66	1.40
23,	1.95	1.84	1.64	1.36
24,	1.82	1.76	1.62	1.28
25,	1.78	1.72	1.60	1.28
26,	1.82	1.67	1.58	1.30
27,	1.80	1.64	1.56	1.51
28,	1.73	1.69	1.68	1.69
29,	1.67	1.68	1.88	1.42
30,	3.24	3.84	1.72	1.34
31,	....	2.34	1.60	....

OHIO BASIN—STATION NO. 32.

NESHANNOCK CREEK AT EAST BROOK STATION, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, wood and steel, through-truss, highway bridge, at East Brook Station, Lawrence County.

RECORDS AVAILABLE—Discharge measurements and gage heights from January 19 to September 30, 1914, and discharge measurements from October 1, 1914, to September 30, 1915.

DRAINAGE AREA—230 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the upstream side of the bridge and is read twice daily by F. C. Reynolds.

CHANNEL—Both banks are high and not subject to overflow, and the bed is composed of rock and gravel.

DISCHARGE MEASUREMENT OF NESHANNOCK CREEK AT EAST BROOK STATION, LAWRENCE COUNTY, PA.

(Drainage area 230 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.-ft.	
3	Sept. 13	Munn, ...	121	1.25	78	Vertical velocity curves.

NOTE.—Owing to the gage heights at this station being unreliable, they have not been published and only the discharge measurement is given herewith.

OHIO BASIN—STATION NO. 33.

SLIPPERY ROCK CREEK AT WURTEMBURG, PA.

DESCRIPTION OF STATION.

LOCATION—At the highway bridge crossing Slippery Rock Creek at the north end of Wurtemburg, Lawrence County.

RECORDS AVAILABLE—Discharge complete from January 1, 1912, to September 30, 1915.

DRAINAGE AREA—400 square miles.

GAGE—A standard chain gage, whose elevation of zero is 817.63 feet above mean sea level, is located on the upstream side of the bridge, and is read twice daily by Jacob H. Boots.

CHANNEL—Both banks are high and do not overflow, and the bed is composed of gravel.

DISCHARGE MEASUREMENT OF SLIPPERY ROCK CREEK AT WURTEMBURG, LAWRENCE COUNTY, PA.

(Drainage area 400 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq ft.	Feet.	Sec. ft.	
22	Sept. 15	Munn, ...	35	2.20	72	Wading below bridge.

DISCHARGE TABLE FOR SLIPPERY ROCK CREEK AT WURTEMBURG, LAWRENCE COUNTY, PA.. FROM JANUARY 1, 1912.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
2.00	20	.10	610	.20	1700	.30	3350	.40	5730
.10	30	.20	690	.30	1820	.40	3530	.50	5980
.20	50	.30	770	.40	1950	.50	3720	.60	6240
.30	80	.40	860	.50	2080	.60	3910	.70	6510
.40	130	.50	950	.60	2220	.70	4120	.80	6780
.50	190	.60	1040	.70	2360	.80	4330	.90	7050
.60	250	.70	1140	.80	2510	.90	4550	7.00	7330
.70	320	.80	1240	.90	2670	6.00	4780		
.80	390	.90	1350	5.00	2830	.10	5010		
.90	460	4.00	1460	.10	3000	.20	5250		
3.00	530	.10	1580	.20	3170	.30	5490		

DAILY MEAN GAGE HEIGHTS, IN FEET, OF SLIPPERY ROCK CREEK AT WURTEMBURG, LAWRENCE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	2.14	2.10	2.26	4.14	5.37	2.93	2.61	2.32	2.40	3.00	3.09	2.30
2,	2.08	2.10	2.85	3.68	8.07	2.87	2.62	2.31	2.36	2.93	3.51	2.29
3,	2.10	2.08	3.26	3.42	6.75	2.75	2.56	2.31	2.58	2.98	3.89	2.29
4,	2.02	2.14	2.87	3.24	5.07	2.75	2.58	2.35	2.97	2.90	5.53	2.27
5,	2.06	2.10	2.65	3.24	4.39	2.67	2.52	2.35	2.78	3.16	4.79	2.27
6,	2.08	2.12	2.51	3.21	4.55	2.71	2.57	2.38	2.56	3.10	3.77	2.27
7,	2.02	2.11	2.49	5.67	4.43	2.75	2.82	2.41	2.45	2.76	3.27	2.31
8,	2.06	2.12	3.49	5.52	3.89	2.73	2.66	2.49	2.44	2.78	3.02	2.28
9,	2.05	2.26	3.65	4.44	3.51	2.71	2.62	2.65	2.44	3.48	[illegible]	2.25
10,	2.04	2.22	3.49	3.89	3.29	2.80	2.58	2.45	2.40	3.10	3.03	2.33
11,	2.06	2.29	3.45	3.46	3.25	3.05	2.66	2.38	2.32	2.70	2.87	[illegible]
12,	2.20	2.26	3.19	3.20	3.74	3.05	2.98	2.36	2.29	3.06	2.94	2.37
13,	2.06	2.23	2.99	3.15	4.56	2.91	2.92	2.34	2.98	3.07	2.91	2.29
14,	2.31	2.20	2.73	3.01	4.65	2.85	2.68	2.28	3.76	2.76	2.79	2.28
15,	2.37	2.18	2.57	2.98	5.27	2.93	2.62	2.24	3.74	2.56	2.65	2.28
16,	2.40	2.22	2.79	2.98	4.97	3.08	2.59	2.31	4.03	2.69	2.63	2.23
17,	2.38	2.24	2.72	3.16	4.19	2.93	2.61	2.33	3.40	4.08	2.51	2.19
18,	2.48	2.29	2.67	4.14	3.78	2.79	2.60	2.31	2.94	3.88	2.43	2.21
19,	2.38	2.27	2.75	5.51	3.43	2.71	2.48	2.35	2.80	3.42	2.40	3.19
20,	2.38	2.24	2.68	4.93	3.29	2.71	2.49	2.31	2.67	3.00	2.85	3.26
21,	2.32	2.23	3.04	4.08	3.13	2.73	2.51	2.53	2.53	2.96	2.33	2.95
22,	2.28	2.20	4.08	3.60	3.09	2.71	2.41	3.23	2.46	2.86	2.51	2.57
23,	2.25	2.16	4.36	3.44	3.09	2.73	2.46	3.23	2.38	2.62	2.93	2.44
24,	2.16	2.15	4.13	3.44	3.35	2.75	2.48	2.89	2.32	2.49	2.75	2.89
25,	2.10	2.24	3.63	3.42	3.57	2.79	2.44	2.89	2.30	2.42	2.57	2.80
26,	2.08	2.26	3.39	3.30	3.37	2.95	2.37	2.79	2.33	2.36	2.45	2.81
27,	2.04	2.14	3.33	3.30	3.05	2.91	2.59	2.60	2.32	2.86	2.41	2.56
28,	2.15	2.10	3.06	3.24	2.97	2.76	2.50	2.55	2.28	2.36	2.43	2.81
29,	2.15	2.20	2.94	3.08	....	2.67	2.42	2.46	2.22	2.37	2.37	2.53
30,	2.14	2.24	3.57	2.88	....	2.63	2.40	2.42	2.68	2.44	2.41	2.41
31,	2.13	....	4.25	3.23	....	2.65	....	2.45	....	2.63	2.38	....

DAILY DISCHARGE, IN SECOND-FEET, OF SLIPPERY ROCK CREEK AT WURTEMBURG, LAWRENCE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	38	30	68	1630	3480	481	257	90	130	580	602	125
2,	28	30	425	1120	††10500	439	264	85	110	481	959	77
3,	30	28	738	878	6640	355	226	85	238	516	1840	77
4,	22	38	439	722	2950	355	238	105	509	460	3780	71
5,	26	30	285	722	1940	299	202	105	376	658	2500	71
6,	28	34	196	698	2150	327	232	120	226	610	1210	71
7,	22	32	184	4060	1990	355	404	136	160	362	746	85
8,	26	34	941	3760	1340	341	292	184	154	376	586	77
9,	25	68	1090	2000	959	327	264	285	154	932	618	65
10,	24	56	941	1340	762	390	238	160	130	610	554	125
11,	26	77	905	914	730	570	292	120	90	320	439	184
12,	50	68	682	690	1180	570	516	110	77	578	488	115
13,	26	59	523	650	2150	467	474	100	516	586	467	77
14,	85	50	341	538	2290	425	306	74	1200	362	383	59
15,	115	46	232	516	3300	481	264	62	1180	226	285	59
16,	130	56	383	516	2780	554	244	85	1500	313	271	59
17,	120	62	334	658	1690	481	257	95	860	1560	196	48
18,	178	77	299	1630	1220	383	250	85	488	1330	148	53
19,	120	71	355	3740	887	327	178	105	390	878	130	682
20,	120	62	306	2720	762	327	184	85	299	530	105	730
21,	90	59	562	1560	634	341	196	208	208	502	95	495
22,	74	50	1560	1040	602	327	136	714	166	432	196	232
23,	65	42	1900	896	602	341	166	714	120	264	481	154
24,	42	40	1620	896	815	355	178	453	90	184	355	125
25,	30	62	1070	878	1010	383	154	453	80	142	232	80
26,	28	68	851	770	833	495	115	383	95	110	160	85
27,	24	38	797	770	570	467	244	250	90	110	138	226
28,	40	30	578	722	509	362	190	220	74	110	148	397
29,	40	50	488	594	....	299	142	166	56	115	115	208
30,	38	62	1010	446	....	271	130	142	306	154	136	136
31,	36	....	1760	714	....	285	....	160	....	271	120	....

Note.—††Discharge above 7330 sec.-ft. is estimated.

ESTIMATED MONTHLY DISCHARGE OF SLIPPERY ROCK CREEK AT WURTEMBURG, LAWRENCE COUNTY, PA.

(Drainage area 400 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	178	22	56	0.14	0.16
November,	77	28	50	0.12	0.13
December,	1900	63	705	1.76	2.03
1915.					
January,	4060	446	1250	3.12	3.60
February,	††10500	509	1970	4.92	5.12
March,	570	271	393	0.98	1.13
April,	516	115	241	0.60	0.67
May,	714	62	198	0.50	0.58
June,	1500	56	336	0.84	0.94
July,	1560	110	471	1.18	1.36
August,	3780	95	580	1.45	1.67
September,	780	48	168	0.42	0.47
The year,	††10500	22	535	1.34	17.86

Note.—††Estimated.

OHIO BASIN—STATION NO. 34.

CONNOQUENESSING CREEK AT HAZEN, BEAVER COUNTY, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge at Hazen, or Riverview, Beaver County.

RECORDS AVAILABLE—Discharge measurements and gage heights June 1 to September 30, 1915.

DRAINAGE AREA—355 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge and is read twice daily by Ethan H. Thomas.

CHANNEL—The right bank is low and overflows at high stages. The left bank is high and precipitous and overflows slightly in extreme stages, and the bed is composed of rock.

REMARKS—This station is maintained in co-operation with the U. S. Engineer Office in Pittsburgh.

DISCHARGE MEASUREMENTS OF CONNOQUENESSING CREEK AT HAZEN, BEAVER COUNTY, PA.

(Drainage area 355 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.ft.	
1	June 1	Inglefield, ...	162	2.06	213	0.2 and 0.8 method.
2	June 2	Chalmers, ...	127	1.98	147	Wading msmt. about 500 ft. below gage; 0.2 and 0.8 method.
3	Sept. 15	Munn, ...	30	1.49	38	Wading below bridge.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF CONNOQUENESSING CREEK AT HAZEN, BEAVER COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	JUNE.	JULY.	AUG.	SEPT.
1, ...	....	2.86	1.84	1.67
2, ...	....	2.38	2.36	1.62
3, ...	2.97	2.40	3.00	1.59
4, ...	2.80	2.34	3.82	1.56
5, ...	2.46	2.63	3.01	1.55
6, ...	2.25	2.43	2.58	1.61
7, ...	2.11	2.22	2.43	1.62
8, ...	2.18	2.40	2.31	1.58
9, ...	2.05	2.50	2.85	1.58
10, ...	1.91	2.18	2.41	1.54
11, ...	1.83	2.11	2.22	1.58
12, ...	1.80	2.63	2.20	1.58
13, ...	†3.60	2.95	2.09	1.52
14, ...	4.26	2.52	1.99	1.49
15, ...	3.42	2.34	1.92	1.47
16, ...	3.00	2.47	2.08	1.42
17, ...	2.62	‡5.68	2.00	1.38
18, ...	2.40	3.28	1.84	1.46
19, ...	2.28	2.70	1.78	3.02
20, ...	2.18	2.47	1.68	2.15
21, ...	2.02	2.30	1.72	1.92
22, ...	1.94	2.24	2.88	1.90
23, ...	1.89	2.06	2.40	1.70
24, ...	1.83	1.94	2.16	1.63
25, ...	1.78	1.86	2.04	1.56
26, ...	2.10	1.82	1.94	1.55
27, ...	1.87	1.87	1.84	1.88
28, ...	1.72	1.86	1.80	1.86
29, ...	1.65	1.78	1.89	1.72
30, ...	2.69	1.98	1.88	1.65
31, ...	....	1.99	1.77	....

Notes.—†Maximum 5.8 ft. at 9 P. M. from hydrograph. ‡Maximum 6.93 ft. at 7 A. M.

RACCOON CREEK.

SOURCE—In northern Washington County, elevation 1,300 feet.

TRIBUTARY TO—Ohio River opposite Merrill, Beaver County, ¼ mile below Dam No. 6, elevation 662 feet.

LENGTH—43 miles.

PROFILE—Rate of fall in feet per mile: from elevation 1,080 to 840, 19 miles, 12.6; thence to elevation 760, 12 miles, 6.7; thence to mouth, 8½ miles, 11.5.

DRAINAGE AREA—184 square miles.

TOPOGRAPHY AND DEVELOPMENT—The stream flows through broken and hilly country, the main valley bordered by steep hills 300 to 400 feet high, while the last 8½ miles is through a tortuous sandstone gorge. The industries consist of agriculture and some coal mining while Burgettstown is the largest community in the basin. Two small tributaries are used for water supply and there is an emergency intake on the main stream.

PRINCIPAL TRIBUTARIES—Burgetts Fork, Little Raccoon, Traverse and Service creeks.

PRECIPITATION—35 to 40 inches annually.

HYDROGRAPHIC DATA—At Moffatt's Mill from May, 1915, to date.

OHIO BASIN—STATION NO. 35.

RACCOON CREEK AT MOFFATT'S MILL, BEAVER COUNTY, PA.

DESCRIPTION OF STATION.

LOCATION—At dismantled single span, steel, through-truss highway bridge, 500 feet below Moffatt's Mill and 4½ miles above the mouth of the creek.

RECORDS AVAILABLE—Discharge measurements and gage heights May 26 to September 30, 1915.

DRAINAGE AREA—178 square miles.

GAGE—A standard chain gage, whose elevation of zero is arbitrary, is located on the downstream side of the bridge and is read twice daily by Alonzo L. McMahon.

CHANNEL—The right bank is high and precipitous and does not overflow; the left bank overflows above and below the bridge, and the bed is rocky.

REMARKS—This station is maintained in co-operation with the U. S. Engineer Office in Pittsburgh.

DISCHARGE MEASUREMENTS OF RACCOON CREEK AT MOFFATT'S MILL, BEAVER COUNTY, PA.

(Drainage area 178 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.ft.	
1	May 26	Inglefield,	55	2.30	76	Wading msmt. about 1500 ft. above gage, 0.2 & 0.8 method.
2	Sept. 27	Wilson & Shade,	154	1.92	18	Surface measurement.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF RACCOON CREEK AT MOFFATT'S MILL, BEAVER COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	....	2.82	3.40	2.58	2.24
2,	....	2.58	2.63	2.47	2.22
3,	....	3.37	2.95	3.87	2.02
4,	....	3.46	3.20	‡4.97	1.90
5,	....	3.06	3.35	3.78	1.92
6,	....	2.80	3.14	3.20	2.01
7,	....	2.63	2.82	2.76	2.07
8,	....	3.02	2.81	3.22	2.10
9,	....	2.56	2.73	3.18	2.10
10,	....	2.40	2.52	2.64	2.12
11,	....	2.33	2.38	2.45	2.24
12,	....	2.32	2.67	2.41	2.18
13,	....	†5.94	2.44	2.34	2.19
14,	....	4.42	2.28	2.30	2.13
15,	....	3.80	2.44	2.28	2.15
16,	....	3.80	3.42	2.26	2.10
17,	....	3.34	3.18	2.16	2.02
18,	....	3.05	2.82	2.20	2.12
19,	....	2.90	2.53	2.18	2.20
20,	....	2.70	2.42	2.14	2.18
21,	....	2.52	2.38	2.14	2.16
22,	....	2.51	2.32	2.18	2.14
23,	....	2.56	2.26	2.30	2.10
24,	....	2.40	2.24	2.19	2.06
25,	....	2.30	2.22	2.17	1.92
26,	....	2.47	2.18	2.14	1.90
27,	2.17	2.24	2.52	2.13	1.95
28,	2.10	2.18	2.38	2.14	2.02
29,	2.56	2.20	2.23	2.28	2.06
30,	2.60	3.12	3.28	2.27	2.09
31,	3.09	....	2.92	2.24	....

Notes.—†Maximum 7.50 ft. at 7 P. M. ‡Maximum 5.48 ft. at 6 A. M.

Records at the following seven stations have been compiled from data furnished by the engineer in charge of the Pymatuning Reservoir Project.

OHIO BASIN—STATION NO. 36.

SHENANGO RIVER AT TURNERVILLE, PA.

DESCRIPTION OF STATION.

LOCATION—At a weir on the upstream side of the single span, through-truss, highway bridge at Turnerville, Crawford County.

RECORDS AVAILABLE—Discharge complete from February 1, 1912, to September 30, 1915.

DRAINAGE AREA—152 square miles.

GAGE—A Bristol recording gage, whose elevation of zero is 975.62 feet above mean sea level, is located on the east abutment of the bridge.

DISCHARGE MEASUREMENTS OF SHENANGO RIVER AT TURNERVILLE, CRAWFORD COUNTY, PA.

(Drainage area 152 square miles).

No.	Date.	Hydrographer.	Head on Weir.	Dis.	Remarks.
	1914.		Feet.	Sec. ft.	
18	March 16	Munn,	3.91	1067	
19	March 18	Munn,	4.80	1504	
20	Aug. 13	Munn,	0.18	14.9	
21	Aug. 20	Munn,	0.10	7.9	
22	Sept. 4	Munn,	0.28	31.5	
	1915.				
23	May 20	Ferris & McElrath,	0.43	57.6	
24	June 29	Ferris & McElrath,	0.10	9.2	
25	June 29	Ferris & McElrath,	0.10	8.5	
26	June 30	Ferris & McElrath,	0.13	12.8	
27	July 6	McElrath,	0.36	48.8	
28	July 8	Ferris & McElrath,	2.86	765	
29	July 9	Ferris & McElrath,	1.66	633	
30	July 9	Ferris & McElrath,	1.54	602	
31	July 9	Ferris & McElrath,	1.49	576	
32	July 9	Ferris & McElrath,	1.41	573	
33	July 10	Ferris & McElrath,	1.01	264	
34	July 12	Ferris & McElrath,	1.05	269	
35	July 14	McElrath,	0.93	236	
36	July 15	Ferris & McElrath,	0.82	197	
37	July 15	Ferris & McElrath,	0.82	194	
38	Aug. 18	Ferris & McElrath,	0.56	90.9	

DISCHARGE TABLE FOR WEIR ON SHENANGO RIVER AT TURNERVILLE, CRAWFORD COUNTY, PA., FROM OCTOBER 1, 1913.

Head.	Discharge.	Head.	Discharge.	Head.	Discharge.	Head.	Discharge.	Head.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
0.00	0.0	.50	599	3.00	815	.50	1285	6.00	1850
.10	8.2	.60	622	.10	840	.60	1320	.10	1895
.20	18.2	.70	640	.20	870	.70	1356	.20	1940
.30	34.8	.80	656	.30	900	.80	1392	.30	1985
.40	56.3	.90	668	40	930	.90	1429	.40	2032
.50	82.4	2.00	677	.50	960	5.00	1466	.50	2080
.60	112	.10	685	.60	990	.10	1503	.60	2128
.70	144	.20	693	.70	1020	.20	1540	.70	2176
.80	180	.30	701	.80	1050	.30	1577	.80	2225
.90	218	.40	710	.90	1081	.40	1615	.90	2276
1.00	263	.50	719	4.00	1113	.50	1653	7.00	2327
.10	323	.60	729	.10	1147	.60	1691		
.20	424	.70	741	.20	1181	.70	1729		
.30	524	.80	759	.30	1215	.80	1767		
.40	572	.90	787	.40	1250	.90	1808		

Note.—This table is only applicable subsequent to October 1, 1913, and supersedes that published in the 1914 report.

DAILY MEAN HEADS ON WEIR, IN FEET, OF SHENANGO RIVER AT TURNERVILLE, CRAWFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.14	0.61	0.58	0.66	3.80	0.35	2.55	1.22	0.23	0.13	0.09	0.21
2,	0.15	0.56	0.57	0.64	3.18	0.29	2.78	1.07	0.22	0.15	0.07	0.20
3,	0.17	0.56	0.55	0.67	2.51	0.29	3.20	0.79	0.22	0.16	0.07	0.22
4,	0.29	0.56	0.54	0.73	1.98	0.28	3.04	0.71	0.23	0.14	0.07	0.27
5,	0.35	0.53	0.51	0.76	1.50	0.25	2.18	0.90	0.29	0.09	0.07	0.25
6,	0.29	0.50	0.45	0.83	1.22	0.28	1.60	1.74	0.28	0.08	0.07	0.21
7,	0.20	0.40	0.48	0.85	1.15	0.35	1.80	2.11	0.24	0.07	0.09	0.18
8,	0.15	0.38	0.60	0.95	1.14	0.40	3.05	2.24	0.20	0.07	0.10	0.15
9,	0.13	0.45	0.65	1.07	1.06	0.42	3.70	1.52	0.19	0.08	0.08	0.12
10,	0.09	0.56	0.74	1.33	0.99	0.42	3.09	1.17	0.17	0.11	0.07	0.12
11,	0.11	0.62	0.81	1.40	0.84	0.47	2.57	1.67	0.16	0.12	0.14	0.13
12,	0.12	0.71	0.76	1.47	0.78	0.69	2.71	4.71	0.17	0.13	0.16	0.11
13,	0.12	1.47	0.81	1.52	0.72	0.87	2.56	6.88	0.17	0.15	0.19	0.12
14,	0.12	4.27	0.81	1.40	0.61	0.91	2.02	6.33	0.12	0.29	0.16	0.12
15,	0.12	6.18	0.83	1.22	0.60	1.52	1.55	4.42	0.09	0.45	0.12	0.12
16,	0.11	5.63	0.82	1.15	0.59	3.51	1.60	2.63	0.09	0.43	0.11	0.10
17,	0.12	4.11	0.83	1.10	0.57	4.87	1.64	1.72	0.08	0.43	0.10	0.09
18,	0.13	2.81	0.83	1.10	0.52	4.66	1.67	1.17	0.09	0.41	0.10	0.09
19,	0.13	2.17	0.80	1.08	0.40	3.05	1.48	0.93	0.13	0.34	0.10	0.08
20,	0.18	1.82	0.68	1.09	0.38	2.12	1.21	0.87	0.17	0.25	0.10	0.10
21,	0.27	1.69	0.71	1.17	0.38	1.65	1.02	0.82	0.20	0.19	0.10	0.10
22,	0.32	1.51	0.68	1.25	0.38	1.20	0.90	0.63	0.28	0.16	0.09	0.10
23,	0.29	1.33	0.67	1.27	0.40	1.02	0.78	0.60	0.25	0.15	0.11	0.10
24,	0.39	1.14	0.84	1.65	0.39	0.99	0.73	0.54	0.25	0.16	0.16	0.10
25,	0.55	0.97	0.85	2.00	0.35	1.04	0.92	0.50	0.26	0.16	0.17	0.10
26,	0.55	0.85	0.77	3.12	0.31	1.19	2.51	0.44	0.22	0.14	0.18	0.10
27,	0.55	0.75	0.77	2.33	0.31	1.77	2.47	0.41	0.18	0.12	0.16	0.11
28,	0.65	0.66	0.92	3.60	0.31	5.10	2.44	0.38	0.16	0.11	0.16	0.11
29,	0.69	0.58	0.80	4.60	....	6.67	1.83	0.32	0.15	0.08	0.21	0.11
30,	0.68	0.60	0.75	5.20	....	5.35	1.44	0.27	0.13	0.08	0.22	0.10
31,	0.64	....	0.69	4.73	....	3.63	....	0.24	....	0.09	0.25	....

Note.—Weir kept free of ice.

DAILY MEAN HEADS ON WEIR, IN FEET, OF SHENANGO RIVER AT TURNERVILLE, CRAWFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.10	0.24	0.95	0.78	3.75	0.88	0.54	0.24	0.31	0.09	0.24	0.44
2,	0.09	0.23	1.01	0.74	6.46	0.78	0.54	0.21	0.29	0.23	0.27	0.39
3,	0.08	0.18	1.30	0.72	7.00	0.70	0.54	0.22	0.29	0.24	0.38	0.36
4,	0.09	0.15	1.46	0.74	6.40	0.67	0.49	0.25	0.36	0.24	1.85	0.26
5,	0.09	0.22	1.39	0.73	5.38	0.62	0.44	0.27	0.36	0.34	1.11	0.23
6,	0.09	0.34	1.23	0.73	4.73	0.59	0.46	0.31	0.27	0.34	0.90	0.22
7,	0.09	0.42	1.17	3.67	4.20	0.56	0.41	0.38	0.21	0.30	1.12	0.24
8,	0.10	0.38	1.35	3.15	3.74	0.56	0.43	0.56	0.22	1.86	1.31	0.22
9,	0.11	0.37	1.47	3.53	3.39	0.57	0.48	0.56	0.24	1.68	1.31	0.21
10,	0.14	0.34	1.83	3.34	2.86	0.58	0.49	0.61	0.24	1.12	1.19	0.20
11,	0.14	0.29	1.94	2.39	2.33	0.60	0.51	0.76	0.24	0.86	1.06	0.17
12,	0.15	0.36	1.88	1.70	2.50	0.61	0.53	0.67	0.23	1.06	0.92	0.17
13,	0.15	0.41	1.60	1.21	3.05	0.61	0.54	0.57	0.19	1.03	0.83	0.17
14,	0.15	0.40	1.83	0.98	4.42	0.60	0.55	0.48	0.15	0.98	0.75	0.16
15,	0.16	0.36	1.03	0.87	4.83	0.60	0.57	0.40	0.27	0.84	0.78	0.12
16,	0.19	0.38	0.94	0.81	4.26	0.64	0.56	0.82	0.30	0.90	0.70	0.12
17,	0.21	0.39	0.77	0.87	3.14	0.63	0.50	0.88	0.28	0.98	0.61	0.16
18,	0.22	0.40	0.71	1.06	2.63	0.62	0.43	0.42	0.31	0.88	0.56	0.23
19,	0.26	0.43	0.65	1.38	2.02	0.59	0.37	0.48	0.26	0.71	0.48	0.42
20,	0.24	0.47	0.56	1.45	1.56	0.55	0.32	0.44	0.22	0.68	0.44	0.36
21,	0.23	0.46	0.55	1.52	1.17	0.51	0.29	0.55	0.22	0.73	0.42	0.37
22,	0.20	0.50	0.61	1.56	0.98	0.48	0.27	0.74	0.20	0.73	0.43	0.33
23,	0.18	0.49	0.69	1.34	0.91	0.47	0.25	0.61	0.18	0.68	0.41	0.26
24,	0.16	0.45	0.67	1.15	1.06	0.47	0.25	0.66	0.16	0.62	0.41	0.21
25,	0.15	0.48	0.65	1.01	1.10	0.51	0.21	0.77	0.18	0.55	0.40	0.18
26,	0.14	0.51	0.65	0.93	1.10	0.62	0.21	0.69	0.16	0.51	0.39	0.20
27,	0.13	0.54	0.67	0.87	1.10	0.64	0.26	0.60	0.14	0.55	0.36	0.33
28,	0.13	0.59	0.63	0.82	0.98	0.62	0.26	0.58	0.10	0.41	0.33	0.39
29,	0.15	0.69	0.60	0.80	....	0.60	0.25	0.49	0.08	0.35	0.36	0.32
30,	0.18	0.72	0.71	0.76	....	0.58	0.24	0.42	0.06	0.36	0.38	0.34
31,	0.22	....	0.80	0.75	....	0.57	....	0.35	....	0.32	0.45	....

Note.—Weir kept free of ice.

DAILY DISCHARGE, IN SECOND-FEET, OF SHENANGO RIVER AT TURNERVILLE, CRAWFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1914.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	11.5	115	105	131	1050	45.1	724	450	22.8	10.6	7.4	19.7
2,	12.4	99.5	102	124	864	32.9	755	302	21.2	12.4	5.8	18.2
3,	14.5	99.5	96.6	134	720	32.9	870	177	21.2	13.4	5.8	21.2
4,	32.9	99.5	93.7	155	675	31.1	825	148	22.8	11.5	5.8	29.4
5,	45.1	90.8	85.2	166	599	26.0	691	218	32.9	7.4	5.8	26.0
6,	32.9	82.4	68.8	191	450	31.1	622	646	31.1	6.6	5.8	19.7
7,	18.2	56.3	76.9	199	365	45.1	656	686	24.4	5.8	7.4	15.6
8,	12.4	51.7	112	239	355	56.3	828	696	18.2	5.8	8.2	12.4
9,	10.6	68.8	128	302	291	61.1	1020	604	16.9	6.6	6.6	9.8
10,	7.4	99.5	159	542	258	61.1	838	336	14.5	9.0	5.8	9.8
11,	9.0	118	184	572	196	74.2	726	635	13.4	9.8	11.5	10.6
12,	9.8	148	166	591	173	141	743	1360	14.5	10.6	13.4	9.0
13,	9.8	591	184	604	151	207	725	2266	14.5	12.4	16.9	9.8
14,	9.8	1205	184	572	115	222	679	1999	9.8	32.2	13.4	9.6
15,	9.8	1931	191	450	112	604	610	1257	7.4	68.8	9.8	9.8
16,	9.0	1702	188	365	108	963	622	733	7.4	63.6	9.0	8.2
17,	9.8	1150	191	323	102	1418	629	643	6.6	63.6	8.2	7.4
18,	10.6	762	191	323	88.0	1342	635	386	7.4	58.7	8.2	7.4
19,	10.6	691	180	306	56.3	828	594	231	10.6	43.0	8.2	6.6
20,	15.6	658	137	315	51.7	687	437	207	14.5	26.0	8.2	8.2
21,	29.4	638	148	336	51.7	631	274	188	18.2	16.9	8.2	8.2
22,	33.8	601	137	483	51.7	424	218	121	31.1	13.4	7.4	8.2
23,	32.9	542	134	502	56.3	274	173	112	26.0	12.4	9.0	8.2
24,	54.0	355	195	631	54.0	258	155	93.7	26.0	13.4	13.4	8.2
25,	96.6	248	199	677	45.1	285	226	82.4	27.7	13.4	14.5	8.2
26,	96.6	199	169	687	36.8	411	720	66.2	21.2	11.5	15.6	8.2
27,	96.6	162	169	704	36.8	651	716	58.7	15.6	9.8	13.4	9.0
28,	128	131	226	990	36.8	1503	714	51.7	13.4	9.0	13.4	9.0
29,	141	105	180	1320	....	2162	660	33.8	12.4	6.6	19.7	9.0
30,	137	112	162	1540	....	1596	583	29.4	10.6	6.6	21.2	8.2
31,	124	....	141	1367	....	999	....	24.4	....	7.4	26.0	....

Note.—Weir kept free of ice.

DAILY DISCHARGE, IN SECOND-FEET, OF SHENANGO RIVER AT TURNERVILLE, CRAWFORD COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	8.2	24.4	239	173	1035	211	93.7	24.4	36.8	7.4	24.4	66.2
2,	7.4	22.8	268	159	2061	173	93.7	19.7	32.9	22.8	29.4	54.0
3,	6.6	15.6	524	151	2327	144	93.7	21.2	32.9	24.4	51.7	47.3
4,	7.4	12.4	588	159	2032	134	79.6	26.0	47.3	24.4	662	27.7
5,	7.4	21.2	567	155	1607	118	66.2	29.4	47.3	43.0	330	22.8
6,	7.4	43.0	462	155	1367	108	71.5	36.8	29.4	43.0	218	21.2
7,	7.4	61.1	386	1011	1181	99.5	58.7	51.7	19.7	34.8	338	24.4
8,	8.2	51.7	552	855	1032	99.5	63.6	99.5	21.2	663	530	21.2
9,	9.0	49.5	591	969	927	102	76.9	99.5	24.4	636	530	19.7
10	11.5	43.0	660	912	776	105	79.6	115	24.4	338	411	18.2
11,	11.5	32.9	672	709	704	112	85.2	166	24.4	203	297	14.5
13,	12.4	47.3	660	640	719	115	90.8	134	22.8	297	226	14.5
13,	12.4	58.7	622	437	828	115	93.7	102	16.9	279	191	14.5
14,	12.4	56.3	542	253	1257	112	96.6	76.9	12.4	231	162	13.4
15,	13.4	47.3	279	207	1403	112	102	56.3	29.4	195	155	9.8
16,	16.9	51.7	235	184	1201	124	99.5	38.8	34.8	218	144	9.8
17,	19.7	54.0	169	207	852	121	82.4	51.7	31.1	231	115	13.4
18,	21.2	56.3	148	297	733	118	63.6	61.1	36.8	211	99.5	22.8
19,	27.7	63.6	128	563	679	108	49.5	63.6	27.7	148	76.9	61.1
20,	24.4	74.2	99.5	586	613	96.6	38.8	66.2	21.2	137	66.2	47.3
21,	22.8	71.5	96.6	604	386	85.2	32.9	96.6	21.2	151	61.1	49.5
22,	18.2	82.4	115	613	253	76.9	29.4	159	18.2	151	63.6	40.9
23,	15.6	79.6	141	547	222	74.2	26.0	115	15.6	137	58.7	27.7
24,	13.4	68.8	134	365	291	74.2	26.0	131	13.4	118	58.7	19.7
25,	12.4	76.9	128	268	323	85.2	19.7	169	15.6	96.6	53.6	15.6
26,	11.5	85.2	128	231	323	118	19.7	141	13.4	85.2	54.0	18.2
27,	10.6	93.7	134	207	323	124	27.7	112	11.5	96.6	47.3	40.9
28,	10.6	108	121	188	253	118	27.7	105	8.2	58.7	40.9	54.0
29,	12.4	141	112	180	....	112	26.0	79.6	6.6	45.1	47.3	38.5
30,	15.6	151	148	166	....	105	24.4	61.1	5.0	47.3	51.7	43.0
31,	21.2	....	180	162	....	102	....	45.1	....	38.5	68.8	....

Note.—Weir kept free of ice.

ESTIMATED MONTHLY DISCHARGE OF SHENANGO RIVER AT TURNERVILLE, CRAWFORD COUNTY, PA.

(Drainage area 152 square miles).

MONTH.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1913.					
October,	141	7.4	41.2	0.271	0.312
November,	1931	51.7	430	2.829	3.157
December,	226	68.8	151	0.993	1.145
1914.					
January,	1540	124	513	3.375	3.891
February,	1050	36.8	255	1.678	1.747
March,	2162	26.4	519	3.414	3.936
April,	1020	155	622	4.092	4.567
May,	2266	24.4	481	3.164	3.648
June,	32.9	6.6	17.8	0.117	0.131
July,	68.8	5.8	18.3	0.127	0.146
August,	26.0	5.8	10.7	0.070	0.081
September,	29.0	6.6	11.8	0.078	0.087
The year,	2266	5.8	256	1,684	22,848
1914.					
October,	27.7	6.6	13.4	0.088	0.101
November,	151	12.4	61.5	0.405	0.452
December,	672	96.6	317	2.086	2.405
1915.					
January,	1011	151	397	2.612	3.012
February,	2327	222	918	6.039	6.287
March,	211	74.2	113	0.743	0.857
April,	102	19.7	61.3	0.403	0.450
May,	169	19.7	82.4	0.542	0.625
June,	47.3	5.0	23.4	0.154	0.172
July,	663	7.4	162	1.066	1.229
August,	662	24.4	170	1.118	1.289
September,	66.2	9.8	29.7	0.196	0.218
The year,	2266	5.8	256	1.684	22.848

OHIO BASIN—STATION NO. 37.

LITTLE SHENANGO RIVER AT GREENVILLE, PA.

DESCRIPTION OF STATION.

LOCATION—At third highway bridge, known as Quaker Bridge, over the Little Shenango River above its mouth.

RECORDS AVAILABLE—Discharge complete from January 1, 1914, to September 30, 1915.

DRAINAGE AREA—107 square miles.

GAGE—A staff gage, whose elevation of zero is 944.50 feet above mean sea level, is located on the upstream side of the right abutment and is read by M. Lantzenhiser.

CHANNEL—Both banks are high and not subject to overflow, and the bed is composed of sand and gravel.

DISCHARGE MEASUREMENTS OF LITTLE SHENANGO RIVER AT GREENVILLE, MERCER COUNTY, PA.

(Drainage area 107 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
			Sq. ft.	Feet.	Sec.ft	
	1914.					
11	Oct. 1	Munn,	230.2	1.10	7.8	Wading above bridge.
	1915.					
12	Aug. 4	McElrath,	706.0	6.34	2631	At bridge station.
13	Aug. 5	McElrath,	554.8	4.72	1592	At bridge station.
14	Aug. 5	McElrath,	531.2	4.43	1381	At bridge station.

DISCHARGE TABLE FOR LITTLE SHENANGO RIVER AT GREENVILLE, MERCER COUNTY, PA., FROM JANUARY 1, 1914.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
1.00	2.0	.50	312	4.00	1093	.50	2140	7.00	3190
.10	8.0	.60	351	.10	1160	.60	2210	.10	3260
.20	15	.70	391	.20	1230	.70	2280	.20	3330
.30	23	.80	433	.30	1300	.80	2350	.30	3400
.40	33	.90	476	.40	1370	.90	2420	.40	3470
.50	44	3.00	522	.50	1440	6.00	2490	.50	3540
.60	57	.10	570	.60	1510	.10	2560	.60	3610
.70	74	.20	620	.70	1580	.20	2630	.70	3680
.80	94	.30	671	.80	1650	.30	2700	.80	3750
.90	117	.40	724	.90	1720	.40	2770	.90	3820
2.00	144	.50	780	5.00	1790	.50	2840	8.00	3890
.10	174	.60	839	.10	1860	.60	2910		
.20	206	.70	901	.20	1930	.70	2980		
.30	239	.80	964	.30	2000	.80	3050		
.40	274	.90	1028	.40	2070	.90	3120		

Note.—This table supersedes that published in the 1914 report.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF LITTLE SHENANGO RIVER AT GREENVILLE, MERCER COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.08	1.21	2.31	2.51	5.63	1.71	1.38	1.20	1.13	2.60	1.43	1.47
2,	1.09	1.20	2.51	2.31	7.09	1.69	1.42	1.19	1.12	2.48	1.44	1.43
3,	1.09	1.19	2.70	2.28	5.38	1.65	1.26	1.18	1.11	2.30	2.42	1.37
4,	1.10	1.22	2.12	2.01	3.55	1.63	1.21	1.22	1.11	2.36	4.86	1.30
5,	1.09	1.19	1.81	1.92	2.74	1.61	1.19	1.28	1.10	2.74	4.40	1.23
6,	1.09	1.22	1.69	1.84	2.57	1.58	1.21	1.39	1.10	3.33	2.69	1.27
7,	1.08	1.22	1.64	4.65	2.41	1.56	1.23	1.41	1.09	3.73	2.40	1.25
8,	1.09	1.21	1.68	3.79	2.29	1.55	1.24	1.52	1.08	3.74	2.45	1.25
9,	1.19	1.48	2.12	2.51	2.14	1.50	1.26	1.39	1.09	3.35	2.63	1.24
10,	1.31	1.81	2.81	1.91	1.98	1.64	1.27	1.37	1.08	2.56	2.29	1.13
11,	1.22	1.28	2.50	1.90	2.82	1.70	1.29	1.32	1.09	2.49	1.93	1.14
12,	1.20	1.27	2.60	1.89	3.48	1.62	1.30	1.29	1.12	2.42	1.91	1.14
13,	1.21	1.25	2.11	1.89	3.07	1.59	1.31	1.30	1.34	2.35	1.89	1.14
14,	1.21	1.24	1.71	1.89	2.97	1.60	1.32	1.31	1.48	2.22	1.87	1.14
15,	1.20	1.21	1.69	1.87	3.42	1.61	1.32	1.31	1.52	2.12	2.20	1.12
16,	1.26	1.61	1.63	1.87	2.74	1.59	1.19	1.39	1.63	2.07	2.24	1.10
17,	1.19	1.59	1.60	1.87	2.39	1.59	1.18	1.42	1.59	2.36	2.01	1.10
18,	1.20	1.51	1.61	1.86	2.21	1.48	1.16	1.78	1.47	2.01	1.85	1.45
19,	1.28	1.48	1.54	1.85	2.00	1.36	1.14	1.91	1.41	1.98	1.70	1.84
20,	1.30	1.26	1.60	1.83	1.81	1.24	1.14	2.24	1.35	1.90	1.61	1.70
21,	1.24	1.21	1.59	1.83	1.82	1.14	1.13	2.51	1.31	1.87	1.56	1.66
22,	1.23	1.20	1.64	1.83	1.82	1.13	1.12	2.62	1.29	1.81	1.51	1.55
23,	1.20	1.13	1.69	....	1.81	1.12	1.12	2.31	1.17	1.81	1.46	1.37
24,	1.12	1.11	1.80	....	1.81	1.14	1.11	1.92	1.13	1.87	1.45	1.25
25,	1.10	1.15	1.89	....	1.82	1.35	1.11	1.87	1.12	1.98	1.44	1.26
26,	1.09	1.13	1.92	....	1.80	2.29	1.10	1.86	1.10	2.05	1.42	1.40
27,	1.11	1.14	1.90	....	1.80	2.27	1.11	1.52	1.10	1.81	1.41	1.55
28,	1.12	1.16	2.01	....	1.79	2.25	1.20	1.34	1.21	1.63	1.39	1.74
29,	1.21	1.17	2.27	....	....	1.73	1.23	1.19	1.44	1.56	1.40	1.73
30,	1.21	1.23	2.39	....	....	1.64	1.22	1.12	1.76	1.52	1.45	1.72
31,	1.19	....	2.42	2.39	....	1.59	....	1.11	....	1.48	1.48	....

DAILY DISCHARGE, IN SECOND-FEET, OF LITTLE SHENANGO RIVER AT GREENVILLE, MERCER COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	7	16	242	316	2230	76	31	15	10	351	36	41
2,	7	15	316	242	3250	72	35	14	9	304	37	36
3,	7	14	391	232	2060	66	20	14	9	239	282	30
4,	8	17	180	147	810	62	16	17	9	260	1690	23
5,	7	14	96	122	408	59	14	21	8	408	1370	17
6,	7	17	72	103	339	54	16	32	8	687	387	21
7,	7	17	64	1540	278	52	17	34	7	920	274	19
8,	7	16	71	958	236	50	18	47	7	926	293	19
9,	14	42	180	316	187	44	20	32	7	698	363	18
10,	24	24	437	120	139	64	21	30	7	335	236	10
11,	17	21	312	117	246	74	22	25	7	304	125	11
12,	15	21	351	115	769	60	23	22	9	282	120	11
13,	16	19	177	115	556	56	24	23	27	256	115	11
14,	16	18	76	115	508	57	25	24	42	213	110	11
15,	15	16	72	110	735	59	25	24	47	180	206	9
16,	20	59	62	110	408	56	14	32	62	165	219	8
17,	14	56	57	110	270	56	14	35	56	260	147	8
18,	15	45	59	108	209	42	12	80	41	147	106	38
19,	21	42	49	106	144	29	11	120	34	125	74	103
20,	23	20	57	101	96	18	11	219	28	117	59	74
21,	18	16	56	101	99	11	10	316	24	110	52	67
22,	17	15	64	101	99	10	9	359	22	96	45	50
23,	15	10	72	*383	96	9	9	242	13	96	40	30
24,	9	9	94	*256	96	11	9	122	10	110	38	19
25,	8	12	115	*188	99	28	9	110	9	139	37	20
26,	7	10	122	*162	94	236	8	108	8	159	35	33
27,	9	11	117	*145	94	229	9	47	8	96	34	50
28,	9	12	147	*132	92	222	15	27	16	62	32	82
29,	16	13	229	*126	....	80	17	14	37	52	33	80
30,	16	17	270	*116	....	64	17	9	86	47	28	78
31,	14	....	282	270	....	56	....	9	....	42	42	....

Note.—*Discharges determined from Turnerville wier, free from ice.

ESTIMATED MONTHLY DISCHARGE OF LITTLE SHENANGO RIVER AT GREENVILLE, MERCER COUNTY, PA.

(Drainage area 107 square miles).

Month.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	24	7	13	0.12	0.14
November,	59	9	21	0.20	0.22
December,	437	49	158	1.48	1.71
1915.					
January,	1540	101	232	2.17	2.50
February,	3250	92	523	4.89	5.09
March,	236	9	67	0.63	0.73
April,	35	8	17	0.16	0.18
May,	359	9	72	0.67	0.77
June,	86	7	22	0.21	0.23
July,	926	42	264	2.47	2.85
August,	1690	32	215	2.01	2.32
September,	103	8	34	0.32	0.36
The year,	3250	7	136	1.28	17.10

OHIO BASIN—STATION NO. 38.

PYMATUNING CREEK BELOW ORANGEVILLE, PA.

DESCRIPTION OF STATION.

LOCATION—At first highway bridge over Pymatuning Creek above its junction with the Shenango River.

RECORDS AVAILABLE—Discharge complete from January 1, 1914, to September 30, 1915.

DRAINAGE AREA—170 square miles.

GAGE—A staff gage, whose elevation of zero is assumed at 100 feet, is located on the upstream side of the west abutment; a chain gage, whose elevation of zero is the same as that of the staff, was placed, on August 17, 1915, on the upstream side of the bridge. Gage heights are observed by C. I. Mitcheltree.

CHANNEL—The right bank is high and not subject to overflow, the left bank overflows at gage height approximately 5.40 feet, and the bed is composed of gravel.

REMARKS—The mill at Orangeville produces some fluctuations in flow particularly at low periods.

DISCHARGE MEASUREMENTS OF PYMATUNING CREEK, BELOW ORANGEVILLE, MERCER COUNTY, PA.

(Drainage area 170 square miles).

No.	Date.		Hydrographer.	Area.	G. H.	Dis.	Remarks.
				Sq. ft.	Feet.	Sec.-ft.	
	1914.						
9	Oct.	2	Munn, ...	33.30	0.65	4.2	Wading above station.
	1915.						
10	April	7	McElrath, ...	78.45	1.33	98.2	
11	May	14	McElrath, ...	60.23	1.10	50.4	
12	May	17	McElrath, ...	80.26	1.36	98.4	
13	May	25	McElrath, ...	102.88	1.65	156	
14	May	25	McElrath, ...	100.57	1.62	154	
15	May	26	McElrath, ...	75.85	1.30	107	
16	May	26	McElrath, ...	78.75	1.34	104	
17	May	26	McElrath, ...	77.24	1.32	95.1	
18	May	27	Ferris, ...	69.86	1.22	76.4	
19	May	27	Ferris, ...	68.90	1.20	75.6	
20	May	27	Ferris, ...	68.27	1.19	67.4	
21	May	27	Ferris, ...	67.41	1.18	66.0	
22	May	28	McElrath, ...	59.01	1.08	49.4	
23	May	28	McElrath, ...	58.13	1.07	49.7	
24	May	28	McElrath, ...	57.43	1.06	48.5	
25	June	15	Ferris, ...	107.26	1.71	170	
26	June	15	Ferris, ...	112.82	1.78	192	
27	June	16	Ferris, ...	126.33	1.95	235	
28	July	8	Haslam & Munn, ...	151.50	2.30	333	
29	July	8	Haslam & Munn, ...	151.50	2.30	333	
30	July	8	Haslam & Munn, ...	141.64	2.16	301	
31	July	12	McElrath, ...	174.51	2.56	371	

DISCHARGE TABLE FOR PYMATUNING CREEK BELOW ORANGEVILLE, MERCER COUNTY, PA., FROM JANUARY 1, 1914.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
0.60	3.5	.20	294	.80	749	.40	1370	7.00	2420
.70	6.4	.30	320	.90	781	.50	1420	.10	2495
.80	13.2	.40	346	4.00	813	.60	1475	.20	2575
.90	24.2	.50	372	.10	846	.70	1530	.30	2655
1.00	38.4	.60	399	.20	880	.80	1590	.40	2735
.10	54	.70	426	.30	914	.90	1650	.50	2815
.20	71	.80	453	.40	950	6.00	1715	.60	2895
.30	89	.90	481	.50	987	.10	1780	.70	2980
.40	108	3.00	509	.60	1024	.20	1845	.80	3065
.50	128	.10	537	.70	1062	.30	1912	.90	3150
.60	149	.20	566	.80	1101	.40	1982	8.00	3240
.70	171	.30	595	.90	1142	.50	2052	.10	3330
.80	194	.40	625	5.00	1185	.60	2125	.20	3420
.90	218	.50	655	.10	1230	.70	2198	.30	3510
2.00	243	.60	686	.20	1275	.80	2271	.40	3600
.10	268	.70	717	.30	1320	.90	2345	.50	3700

Note.—This table supersedes that published in the 1914 report.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF PYMATUNING CREEK BELOW ORANGEVILLE, MERCER COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	0.65	0.75	2.05	2.25	5.79	2.30	1.10	0.80	0.90	0.80	0.77	1.20
2,	0.65	0.75	2.60	2.20	8.06	2.20	1.20	0.75	0.85	0.85	0.80	1.25
3,	0.70	0.70	2.50	2.15	8.50	1.70	1.10	0.80	0.80	0.85	1.07	1.05
4,	0.70	0.75	2.40	2.17	7.68	1.30	1.05	0.80	0.95	0.95	2.28	0.80
5,	0.68	0.75	2.80	1.90	6.85	1.10	1.10	0.85	0.90	1.10	1.96	0.80
6,	0.68	0.70	2.10	1.72	6.53	1.10	1.10	0.85	0.95	1.28	1.47	0.80
7,	0.65	0.75	1.95	5.86	6.00	1.10	1.12	0.80	0.95	1.20	1.31	0.75
8,	0.65	0.75	2.40	5.65	5.60	1.30	1.29	1.40	1.00	1.30	1.31	0.80
9,	0.70	0.85	2.50	6.06	5.00	1.50	1.10	1.60	0.90	2.59	1.63	0.90
10,	0.70	0.80	2.65	5.50	5.00	1.60	1.10	1.60	0.80	2.75	1.40	0.90
11,	0.70	0.80	2.75	4.90	4.70	1.55	1.15	1.55	0.80	2.70	1.20	0.85
12,	0.70	1.05	2.70	4.30	5.00	1.60	1.20	1.55	0.75	2.60	1.00	0.80
13,	0.70	1.00	2.60	3.80	4.70	1.70	1.15	1.40	0.75	2.45	0.95	0.75
14,	0.80	0.95	2.50	3.00	5.60	1.60	1.10	1.10	0.70	2.30	0.90	0.75
15,	0.75	0.88	3.15	2.40	6.70	1.50	1.20	1.00	1.45	2.10	0.90	0.75
16,	0.80	1.20	2.95	2.10	5.60	1.60	1.15	0.90	1.93	1.80	1.70	0.70
17,	0.80	1.05	2.70	1.90	4.40	1.50	1.05	1.20	1.70	1.90	1.40	0.75
18,	0.80	1.20	2.50	2.40	3.90	1.40	1.05	0.85	1.40	1.80	1.25	0.80
19,	0.80	1.25	1.80	4.40	3.40	1.30	1.05	1.00	1.05	1.70	0.90	1.25
20,	0.80	1.20	1.22	3.40	2.70	1.20	1.00	1.10	0.95	1.60	0.95	1.80
21,	0.90	1.30	1.15	3.60	2.20	1.20	1.00	1.15	0.90	1.45	0.95	1.65
22,	0.75	1.10	1.80	3.80	1.80	1.15	0.95	1.90	0.90	1.20	1.00	1.40
23,	0.80	1.22	1.85	3.70	1.60	1.20	0.90	2.00	0.85	1.10	1.00	1.25
24,	0.75	1.25	1.80	3.40	1.80	1.25	0.80	1.90	0.85	0.95	0.95	1.10
25,	0.78	1.20	1.80	3.30	2.00	1.20	0.80	1.65	0.80	0.90	0.95	0.80
26,	0.80	0.88	1.60	3.20	2.00	1.60	0.90	1.33	0.75	0.85	0.90	0.75
27,	0.80	0.80	1.60	2.90	1.80	1.85	0.90	1.22	0.75	0.90	0.90	1.10
28,	0.75	0.80	1.55	2.70	2.20	1.60	0.95	1.07	0.75	0.80	0.85	1.20
29,	0.75	0.78	1.50	2.50	....	1.40	0.90	1.05	0.70	0.80	0.90	1.25
30,	0.75	1.00	1.80	2.00	....	1.30	0.85	1.00	0.75	0.80	0.90	1.00
31,	0.75	....	2.10	1.80	....	1.20	....	0.95	....	0.80	1.00	....

DAILY DISCHARGE, IN SECOND FEET, OF PYMATUNING CREEK BELOW ORANGEVILLE, MERCER COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	4.5	9.3	256	307	1584	320	54	13.2	24.2	13.2	10.7	71
2,	4.5	9.3	399	294	3294	294	71	9.3	18.2	18.2	13.2	80
3,	6.4	6.4	372	281	3700	171	54	13.2	13.2	18.2	49.4	46.2
4,	6.4	9.3	346	286	2963	89	46.2	13.2	30.9	30.9	315	13.2
5,	5.5	9.3	320	218	2308	54	54	18.2	24.2	54	233	13.2
6,	5.5	6.4	268	176	2074	54	54	18.2	30.9	85	122	13.2
7,	4.5	9.3	230	1626	1715	54	57	13.2	30.9	71	91	9.3
8,	4.5	9.3	346	1502	1475	89	87	108	38.4	89	91	13.2
9,	6.4	18.2	372	1754	1185	128	54	149	24.2	396	156	24.2
10,	6.4	13.2	412	1420	1185	149	54	149	13.2	440	108	24.2
11,	6.4	13.2	440	1142	1062	138	62	138	13.2	426	71	18.2
12,	6.4	46.2	426	914	1185	149	71	138	9.3	399	38.4	13.2
13,	6.4	38.4	399	749	1062	171	62	108	9.3	359	30.9	9.3
14,	13.2	30.9	372	509	1475	149	54	54	6.4	320	24.2	9.3
15,	9.3	21.7	552	346	2198	128	71	38.4	118	268	24.2	9.3
16,	13.2	71	495	268	1475	149	62	24.2	226	194	171	6.4
17,	13.2	46.2	426	218	950	128	46.2	71	171	218	108	9.3
18,	13.2	71	372	346	781	108	46.2	18.2	108	194	80	13.2
19,	13.2	80	194	950	625	89	46.2	38.4	46.2	171	24.2	80.0
20,	13.2	71	75	625	426	71	38.4	54	30.9	149	30.9	194
21,	24.2	89	62	686	294	71	38.4	62	24.2	118	30.9	160
22,	9.3	54	194	749	194	62	30.9	218	24.2	71	38.4	108
23,	13.2	75	206	717	149	71	24.2	243	18.2	54	38.4	80
24,	9.3	80	194	625	194	80	13.2	218	18.2	30.9	30.9	54
25,	11.5	71	194	595	243	71	13.2	160	13.2	24.2	30.9	13.2
26,	13.2	21.7	149	566	243	149	24.2	95	9.3	18.2	24.2	9.3
27,	13.2	13.2	149	481	194	206	24.2	75	9.3	24.2	24.2	54
28,	9.3	13.2	138	426	294	149	30.9	49.4	9.3	13.2	18.2	71
29,	9.3	11.5	128	372	....	108	24.2	46.2	6.4	13.2	24.2	80
30,	9.3	38.4	194	243	....	89	18.2	38.4	9.3	13.2	24.2	38.4
31,	9.3	....	268	194	....	71	....	30.9	....	13.2	38.4	....

ESTIMATED MONTHLY DISCHARGE OF PYMATUNING CREEK BELOW ORANGEVILLE, MERCER COUNTY, PA.

(Drainage area 170 square miles).

Month.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	24.2	4.5	9.5	0.056	0.065
November,	89.0	6.4	35.3	0.208	0.232
December,	552	62	289	1.700	1.960
1915.					
January,	1754	176	632	3.718	4.287
February,	3700	149	1233	7.253	7.550
March,	320	54	123	0.724	0.835
April,	87.0	13.2	46.2	0.272	0.304
May,	243	9.3	78.1	0.459	0.529
June,	226	6.4	37.6	0.221	0.247
July,	440	13.2	139	0.818	0.943
August,	315	10.7	68.2	0.401	0.463
September,	194	6.4	44.6	0.262	0.292
The year,	3700	4.5	228	1.341	17.707

OHIO BASIN—STATION NO. 39.

SHENANGO RIVER AT SHARON, PA.

DESCRIPTION OF STATION.

LOCATION—At single span, steel, through-truss, highway bridge at Chestnut St., Sharon, Mercer County.

RECORDS AVAILABLE—Discharge complete from August 1, 1909, to September 30, 1915.

DRAINAGE AREA—611 square miles.

GAGE—A staff gage, whose elevation of zero was 840 feet above mean sea level, was originally fastened to the cribbing on the right bank of the river, about 50 feet above the Chestnut Street bridge. This gage was washed out by high water in March, 1913, and gage heights have been obtained by measuring to the water surface from a chisel mark on handrail 15 feet from west, or right abutment, upstream side, west end of bridge, whose elevation is 862.57 feet above mean sea level. On April 1, 1915, a Bristol recording gage, whose elevation of zero is 840 feet above mean sea level, was installed on the bridge.

CHANNEL—Both banks are approximately 12 feet above the river bed, which is composed of gravel and dirt.

DISCHARGE MEASUREMENTS OF SHENANGO RIVER AT SHARON, MERCER COUNTY, PA.

(Drainage area 611 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.-ft.	
79	April 7	Munn, ...	270.1	3.00	287	Mill St.
80	March 17	Haslam & Munn, ...	1983	9.46	5886	State St.
81	May 28	Munn, ...	238	2.93	255	Mill St.
82	June 16	Ferris & McElrath, ...	449	4.71	1150	Mill St.
83	June 18	Ferris & McElrath, ...	250.3	3.10	306	Mill St.
84	July 6	Munn, ...	325.9	3.57	500	Mill St.
85	July 7	McElrath, ...	252.0	3.14	305	Mill St.
86	July 12	Munn, ...	456.2	4.73	1170	Mill St.

DISCHARGE TABLE FOR SHENANGO RIVER AT SHARON, MERCER COUNTY, PA., FROM MARCH 24, 1913.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
1.70	20	.40	885	.10	2788	.80	5758	.50	11330
.80	23	.50	940	.20	2879	.90	5900	.60	11564
.90	26	.60	997	.30	2971	10.00	6070	.70	11798
2.00	34	.70	1055	.40	3064	.10	6208	.80	12032
.10	47	.80	1114	.50	3158	.20	6374	.90	12266
.20	62	.90	1174	.60	3253	.30	6548	13.00	12500
.30	79	5.00	1235	.70	3349	.40	6730	.10	12734
.40	99	.10	1297	.80	3446	.50	6920	.20	12968
.50	121	.20	1360	.90	3544	.60	7115	.30	13202
.60	145	.30	1424	8.00	3643	.70	7313	.40	13436
.70	171	.40	1489	.10	3743	.80	7518	.50	13670
.80	199	.50	1555	.20	3844	.90	7727	.60	13904
.90	229	.60	1622	.30	3946	11.00	7940	.70	14138
3.00	261	.70	1690	.40	4049	.10	8160	.80	14372
.10	295	.80	1759	.50	4153	.20	8380	.90	14606
.20	331	.90	1830	.60	4258	.30	8600	14.00	14840
.30	368	6.00	1902	.70	4364	.40	8820	.10	15074
.40	407	.10	1975	.80	4474	.50	9040	.20	15308
.50	448	.20	2050	.90	4588	.60	9260	.30	15542
.60	491	.30	2127	9.00	4706	.70	9480	.40	15776
.70	535	.40	2205	.10	4828	.80	9700	.50	16010
.80	581	.50	2284	.20	4954	.90	9930	.60	16244
.90	6[illegible]8	.60	2364	.30	5083	12.00	10160	.70	16478
4.00	676	.70	2445	.40	5214	.10	10394	.80	16712
.10	726	.80	2527	.50	5347	.20	10628	.90	16946
.20	778	.90	2612	.60	5482	.30	10862	15.00	17180
.30	831	7.00	2699	.70	5619	.40	11096		

Note.—This table is only applicable subsequent to March 24, 1913, and supersedes all former tables published since that date. It is based on 21 discharge measurements made during 1914-15, together with former curve.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF SHENANGO RIVER AT SHARON, MERCER COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.90	2 20	3.89	3.96	8.03	3.76	2.84	2.64	2.49	2.38	2.44	2.82
2,	1.94	2.10	4.94	3.56	11.69	3.55	2.86	2.53	2.42	3.01	2.35	2.84
3,	1.95	2.16	4.91	3.39	10.59	3.26	2.82	2.43	2.45	4.29	2.66	2.81
4,	1.99	2.29	4.48	3.24	10.47	3.04	2.79	2.48	2.52	3.44	6.39	2.72
5,	1.92	2.26	4.28	3.14	8.04	3.10	2.77	2.45	2.51	3.30	7.67	2.61
6,	1.90	2.23	4.02	3.14	7.64	3.08	2.90	2.47	2.44	3.65	5.07	2.43
7,	1.90	2.22	3.88	7.13	7.11	3.02	2.85	2.53	2.34	3.14	4.06	2.36
8,	1.98	2.36	5.14	7.23	6.24	3.08	2.88	2.89	2.43	3.84	3.94	2.28
9,	1.92	2.24	5.15	6.68	5.58	3.06	2.85	3.43	2.38	6.37	4.36	2.27
10,	1.91	2.58	5.33	5.71	5.06	3.16	2.80	3.25	2.32	5.06	4.13	2.23
11,	2.00	2.70	5.28	5.45	4.84	3.54	2.87	3.17	2.35	4.25	3.67	2.21
12,	2.08	2.62	4.98	5.04	5.19	3.58	2.98	3.21	2.19	4.58	3.59	2.31
13,	2.04	2.62	4.62	4.56	6.50	3.44	3.08	3.02	2.19	4.74	4.10	2.12
14,	2.22	2.56	4.33	4.02	7.18	3.34	2.95	2.82	2.19	4.22	3.69	2.08
15,	2.22	2.52	3.78	3.71	7.70	3.43	2.86	2.73	2.98	3.77	3.54	2.12
16,	2.44	2.66	3.70	3.40	7.91	3.47	2.86	2.63	4.43	3.72	4.40	2.11
17,	2.40	2.82	3.51	3.66	6.66	3.44	2.84	2.63	3.57	4.15	3.97	2.06
18,	2.42	2.80	3.22	4.40	5.67	3.28	2.77	2.79	3.06	4.06	3.54	2.19
19,	2.34	2.76	3.01	6.40	5.12	3.17	2.66	2.81	2.80	3.63	3.16	3.29
20,	2.52	2.72	2.90	5.83	4.66	3.11	2.59	2.81	2.66	3.36	2.96	3.95
21,	2.48	2.62	3.12	4.90	4.20	3.00	2.54	3.18	2.51	3.23	2.83	3.24
22,	2.48	2.60	3.44	4.50	4.00	2.98	2.47	4.11	2.46	3.57	2.82	2.92
23,	2.36	2.58	3.46	4.40	3.91	3.02	2.46	4.01	2.38	3.17	2.94	2.69
24,	2.38	2.52	3.32	4.13	4.20	3.09	2.43	3.62	2.32	2.96	2.92	2.56
25,	2.22	2.59	3.23	4.02	4.50	3.22	2.41	3.49	2.29	2.78	2.71	2.49
26,	2.10	2.54	3.10	3.80	4.49	3.64	2.48	3.29	2.26	2.67	2.62	2.38
27,	2.06	2.44	3.12	3.66	4.11	3.60	2.48	3.10	2.25	2.61	2.60	2.50
28,	2.28	2.58	2.86	3.51	3.90	3.36	2.70	2.93	2.15	2.59	2.53	2.80
29,	2.19	2.49	2.80	3.42	....	3.32	2.81	2.74	2.08	2.63	2.60	2.74
30,	2.14	2.64	3.30	3.27	....	3.20	2.70	2.61	2.23	2.53	2.67	2.64
31,	2.25	....	3.96	3.20	....	3.12	....	2.56	....	2.46	2.76	....

Note.—October 1, 1914, to March 31, 1915, mean gage heights computed from hydrograph; from April 1 to September 30, 1915, recording gage used.

DAILY DISCHARGE, IN SECOND-FEET, OF SHENANGO RIVER AT SHARON, MERCER COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	26	62	623	657	3673	563	211	155	119	95	108	205
2,	29	47	1198	474	9458	470	217	128	103	264	89	211
3,	30	56	1180	403	7096	353	205	117	110	826	161	202
4,	33	77	929	346	6863	275	196	117	126	423	2197	177
5,	28	72	820	309	3683	295	191	110	123	368	3320	148
6,	26	65	686	309	3291	287	229	114	108	513	1278	106
7,	26	65	619	2815	2797	268	214	128	87	309	706	91
8,	32	91	1322	2907	2081	287	223	226	106	600	647	76
9,	28	69	1328	2429	1609	281	214	419	95	2182	863	74
10,	27	140	1444	1697	1272	317	199	350	83	1272	742	67
11,	34	171	1411	1522	1138	465	220	320	89	804	522	64
12,	44	150	1223	1260	1354	482	255	335	60	986	487	81
13,	39	150	1009	974	2284	423	287	268	60	1079	726	50
14,	65	185	847	686	2861	384	245	205	60	789	531	44
15,	65	126	572	540	3349	419	217	179	255	567	465	50
16,	108	161	535	407	3554	436	217	153	902	544	885	48
17,	99	205	452	517	2413	423	211	153	478	752	662	42
18,	103	199	338	885	1670	361	191	196	281	706	465	60
19,	87	188	264	2205	1310	320	161	202	199	504	817	364
20,	126	177	229	1780	1032	299	143	202	161	391	248	652
21,	117	150	302	1174	778	261	131	324	123	342	208	346
22,	117	145	423	940	676	255	114	731	112	478	205	235
23,	91	140	432	885	633	268	112	681	95	320	242	168
24,	95	126	376	742	778	292	106	500	83	248	235	135
25,	65	143	342	686	940	338	101	444	77	193	174	119
26,	47	131	295	581	934	509	117	364	72	163	150	95
27,	42	108	302	517	731	491	117	295	70	148	145	121
28,	76	140	217	452	628	391	171	239	54	143	126	199
29,	60	119	199	415	....	376	202	182	44	153	145	182
30,	53	155	368	357	....	331	171	148	67	128	163	155
31,	70	....	657	331	....	302	....	135	....	112	188	....

ESTIMATED MONTHLY DISCHARGE OF SHENANGO RIVER AT SHARON, MERCER COUNTY, PA.

(Drainage area 611 square miles).

Month.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	126	26	60.9	0.100	0.115
November,	205	47	125	0.204	0.228
December,	1444	199	676	1.106	1.275
1915.					
January,	2907	309	971	1.589	1.832
February,	9458	628	2460	4.026	4.191
March,	563	255	362	0.593	0.684
April,	287	101	186	0.304	0.339
May,	731	110	262	0.429	0.495
June,	902	44	147	0.240	0.268
July,	2182	95	529	0.866	0.998
August,	3320	89	561	0.918	1.058
September,	652	42	152	0.249	0.278
The year,	9458	26	541	0.885	11.761

OHIO BASIN—STATION NO. 40.

SHENANGO RIVER AT NEW CASTLE, PA.

DESCRIPTION OF STATION.

LOCATION—At West Washington Street Bridge over Shenango River at New Castle, Lawrence County.

RECORDS AVAILABLE—Discharge complete from January 1, 1910, to September 30, 1915.

DRAINAGE AREA—797.4 square miles.

GAGE—A chain gage, whose elevation of zero is 787.00 feet above mean sea level, is located on the bridge, and is read by H. T. Munn.

CHANNEL—The right bank is high and not subject to overflow, the left bank is high and overflows only during extreme floods, and the bed is composed of rock and gravel.

DISCHARGE MEASUREMENTS OF SHENANGO RIVER AT NEW CASTLE, LAWRENCE COUNTY, PA.

(Drainage area 797.4 square miles).

No.	Date.		Hydrographer.	Area.	G. H.	Dis.	Remarks.
				Sq. ft.	Feet.	Sec.-ft.	
	1914.						
*18	Oct.	5	Munn, ...	24.2	787.99	18.4	Wading below waterworks.
	1915.						
19	Feb.	2	Munn, ...	2255	797.16	12400	
20	May	22	Munn, ...	765	789.94	839	
21	May	22	Munn, ...	770	789.98	814	
22	May	25	Munn, ...	682	789.51	622	
23	May	28	Munn, ...	602	789.02	370	
24	June	16	Munn, ...	823	790.28	1169	
25	June	17	Munn, ...	755	789.92	893	
26	June	17	Munn, ...	719	789.70	805	
27	June	18	Munn, ...	650	789.31	492	
28	June	18	Munn, ...	630	789.19	422	
29	July	6	Munn, ...	668	789.42	590	
30	July	9	Munn, ...	1090	791.71	2735	
31	July	10	Munn, ...	1010	791.27	2113	
32	July	17	Munn, ...	882	790.62	1480	

*Numbers of measurements have been changed due to eliminating six discharge measurements made during March, 1914.

DISCHARGE TABLE FOR SHENANGO RIVER AT NEW CASTLE, LAWRENCE COUNTY. PA., FROM APRIL 1, 1913.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
788.00	19.7	.90	1754	.80	5505	.70	11070	.60	17910
.10	33.1	791.00	1855	.90	5670	.80	11290	.70	18170
.20	50.0	.10	1960	794.00	5835	.90	11510	.80	18430
.30	70.0	.20	2065	.10	6000	797.00	11730	.90	18690
.40	93.2	.30	2170	.20	6170	.10	11950	800.00	18950
.50	120	.40	2275	.30	6345	.20	12170	.10	19210
.60	153	.50	2380	.40	6520	.30	12400	.20	19470
.70	190	.60	2490	.50	6695	.40	12630	.30	19730
.80	231	.70	2600	.60	6870	.50	12860	.40	19990
.90	275	.80	2715	.70	7050	.60	13090	.50	20250
789.00	323	.90	2830	.80	7235	.70	13320	.60	20510
.10	376	792.00	2945	.90	7420	.80	13550	.70	20780
.20	431	.10	3065	795.00	7605	.90	13780	.80	21050
.30	493	.20	3185	.10	7790	798.00	14010	.90	21320
.40	556	.30	3305	.20	7980	.10	14250	801.00	21590
.50	620	.40	3430	.30	8170	.20	14490	.10	21870
.60	683	.50	3560	.40	8365	.30	14730	.20	22160
.70	749	.60	3700	.50	8560	.40	14970	.30	22460
.80	816	.70	3840	.60	8760	.50	15210	.40	22760
.90	889	.80	3985	.70	8960	.60	15450	.50	23070
790.00	965	.90	4130	.80	9170	.70	15690	.60	23380
.10	1042	793.00	4275	.90	9380	.80	15930	.70	23690
.20	1122	.10	4420	796.00	9590	.90	16170	.80	24010
.30	1204	.20	4565	.10	9800	799.00	16410	.90	24340
.40	1288	.30	4715	.20	10010	.10	16660	802.00	24700
.50	1374	.40	4865	.30	10220	.20	16910		
.60	1465	.50	5020	.40	10430	.30	17160		
.70	1560	.60	5180	.50	10640	.40	17410		
.80	1656	.70	5340	.60	10850	.50	17660		

Note.—This table is only applicable subsequent to April 1, 1913, and is based on measurements taken during 1915 together with former curve.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF SHENANGO RIVER AT NEW CASTLE, LAWRENCE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	788.08	788.38	788.93	789.90	792.67	789.61	789.09	788.75	788.70	788.41	789.40	788.80
2,	88.10	88.37	90.48	89.85	95.89	89.52	89.05	88.72	88.62	88.50	89.09	88.79
3,	88.12	88.43	90.90	89.38	97.82	89.30	88.98	88.65	88.67	89.43	89.57	88.80
4,	88.10	88.48	90.38	89.24	96.68	89.12	88.95	88.68	88.70	89.74	92.26	88.74
5,	87.99	88.50	90.06	89.20	94.63	89.06	88.88	88.62	88.74	89.29	92.97	88.72
6,	88.01	88.45	90.00	89.12	93.35	89.14	88.92	88.63	88.66	89.39	91.92	88.65
7,	88.11	88.51	89.79	92.10	92.79	89.16	89.06	88.62	88.61	89.32	90.21	88.58
8,	88.18	88.52	90.50	92.60	92.05	89.10	89.00	88.70	88.60	89.24	89.84	88.55
9,	88.12	88.52	91.10	92.42	91.32	89.16	89.01	89.11	88.70	91.31	89.94	88.52
10,	88.25	88.64	91.00	91.32	90.88	89.24	88.97	89.28	88.64	91.06	89.22	88.61
11,	88.32	88.69	91.16	91.10	90.61	89.50	89.00	89.12	88.52	90.19	89.73	88.60
12,	88.16	88.85	90.86	90.86	90.80	89.65	89.10	89.08	88.52	90.22	89.56	88.51
13,	88.27	88.80	90.50	90.52	92.18	89.52	89.13	89.10	88.56	90.50	89.84	88.51
14,	88.38	88.85	90.24	90.12	92.62	89.42	89.06	88.97	88.51	90.16	89.87	88.50
15,	88.38	88.88	89.83	89.79	93.38	89.42	89.00	88.82	88.64	89.82	89.53	88.39
16,	88.42	88.82	89.78	89.61	93.56	89.48	88.99	88.74	90.14	89.79	90.49	88.38
17,	88.57	88.90	89.62	89.58	92.92	89.48	88.96	88.71	89.80	90.40	90.22	88.41
18,	88.60	88.96	89.32	90.20	91.54	89.28	88.91	88.73	89.28	90.03	89.74	88.40
19,	88.57	88.95	89.18	92.25	90.86	89.25	88.89	88.79	89.00	89.67	89.45	88.59
20,	88.62	88.90	89.05	91.78	90.49	89.18	88.81	88.84	88.82	89.32	89.15	90.09
21,	88.64	88.84	89.10	90.90	90.15	89.10	88.72	88.92	88.70	89.19	89.02	89.51
22,	88.60	88.80	89.58	90.50	89.90	89.02	88.69	89.94	88.57	89.26	89.01	89.18
23,	88.60	88.74	89.52	90.28	89.88	89.10	88.68	90.12	88.55	89.31	89.00	88.92
24,	88.54	88.70	89.45	90.42	89.95	89.09	88.70	89.65	88.52	89.05	88.99	88.82
25,	88.50	88.70	89.28	90.13	90.25	89.18	88.71	89.52	88.45	88.89	88.98	88.70
26,	88.46	88.72	89.18	90.09	90.20	89.48	88.65	89.32	88.52	88.78	88.90	88.61
27,	88.50	88.74	89.25	89.66	90.15	89.56	88.66	89.22	88.46	88.71	88.78	88.69
28,	88.40	88.64	89.00	89.54	89.82	89.42	88.75	89.05	88.40	88.71	88.75	88.82
29,	88.36	88.72	88.99	89.35	....	89.26	88.92	88.91	88.40	88.74	88.80	88.92
30,	88.50	88.74	89.04	89.30	....	89.23	88.95	88.83	88.41	88.81	88.80	88.83
31,	88.46	....	89.80	89.28	....	89.14	....	88.76	....	88.73	88.76	....

Note.—Gage not affected by ice.

DAILY DISCHARGE, IN SECOND-FEET, OF SHENANGO RIVER AT NEW CASTLE, LAWRENCE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	30.2	88.2	289	889	3798	690	371	210	190	95.7	556	231
2,	33.1	85.8	1357	852	9359	633	360	198	160	120	371	227
3,	36.1	101	1754	543	12446	493	313	172	179	575	664	231
4,	33.1	114	1271	456	11026	387	299	183	190	776	3257	206
5,	18.4	120	1011	431	6924	355	266	160	206	487	4232	198
6,	20.9	106	965	387	4790	398	285	164	175	550	2853	172
7,	34.6	123	809	3065	3970	409	355	160	157	506	1130	146
8,	46.3	127	1374	3700	3005	376	323	190	153	456	845	136
9,	36.1	127	1960	3456	2191	409	328	382	190	2180	910	127
10,	59.5	168	1855	2191	1734	456	309	481	168	1918	443	157
11,	74.2	186	2023	1960	1474	620	323	387	127	1114	769	153
12,	42.8	253	1715	1715	1656	716	376	365	127	1138	658	123
13,	63.5	231	1374	1392	3161	633	392	376	140	1374	846	123
14,	88.2	253	1155	1058	3728	569	355	309	123	1090	867	120
15,	88.2	266	838	809	4835	569	323	240	168	831	639	90.7
16,	98.3	240	803	690	5116	607	318	206	1074	809	1365	88.2
17,	143	275	696	670	4159	607	304	194	816	1288	1138	95.7
18,	153	304	506	1122	2424	481	280	202	481	988	776	93.2
19,	143	299	420	3245	1715	462	271	227	323	729	588	146
20,	160	275	350	2692	1365	420	235	249	240	506	404	1034
21,	168	249	376	1754	1082	376	198	285	190	426	334	626
22,	153	231	670	1374	889	334	186	910	143	468	328	420
23,	153	206	633	1188	874	376	183	1058	136	499	323	285
24,	133	190	588	1305	927	371	190	716	127	350	318	240
25,	120	190	481	1066	1163	420	194	633	106	271	313	190
26,	109	198	420	1084	1122	607	172	506	127	223	275	157
27,	120	206	462	723	1082	658	175	443	109	194	223	186
28,	93.2	168	323	645	831	569	210	350	93.2	194	210	240
29,	83.4	198	318	524	....	468	285	280	93.2	206	231	285
30,	120	206	344	498	....	450	299	244	95.7	235	231	244
31,	109	....	816	481	....	398	....	215	....	202	215	....

ESTIMATED MONTHLY DISCHARGE OF SHENANGO RIVER AT NEW CASTLE, LAWRENCE COUNTY, PA.

(Drainage area 797.4 square miles).

Month.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	168	18.4	89.2	0.112	0.129
November,	304	85.8	193	0.242	0.270
December,	2023	289	902	1.131	1.304
1915.					
January,	3700	387	1352	1.696	1.955
February,	12446	831	3459	4.338	4.516
March,	716	334	494	0.620	0.715
April,	392	172	282	0.354	0.395
May,	1068	160	345	0.433	0.499
June,	1074	93.2	220	0.276	0.308
July,	2180	95.7	671	0.841	0.970
August,	4232	210	849	1.065	1.229
September,	1084	88.2	226	0.283	0.316
The year,	12446	18.4	757	0.949	12.606

OHIO BASIN—STATION NO. 41.

MAHONING RIVER AT NEW CASTLE, PA.

DESCRIPTION OF STATION.

LOCATION—At Borough Line Bridge, which is the first highway bridge above the mouth of the river.

RECORDS AVAILABLE—Discharge measurements from March 10, 1914, and daily discharge from August 12, 1914, to September 30, 1915.

DRAINAGE AREA—1,070 square miles.

GAGE—A chain gage, whose elevation of zero is 760.00 feet, New Castle City Datum, is located on the downstream side of the bridge, and is read by C. O. Brest.

CHANNEL—Both banks overflow at gage height of approximately 11 feet, and the bed is composed of sand and gravel.

REMARKS—Data at this station to October 1, 1914, has been published under Mahoning River at Lawrence Junction, Lawrence County.

DISCHARGE MEASUREMENTS OF MAHONING RIVER AT NEW CASTLE, LAWRENCE COUNTY, PA.

(Drainage area 1,070 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
			Sq. ft.	Feet.	Sec.ft	
	1914.					
10	Oct. 14	Brown & Munn, ...	307.6	762.84	146	
	1915.					
11	May 25	Munn, ...	582.5	764.20	588	
12	July 10	Haslam & Munn, ...	669.4	764.61	869	

DISCHARGE TABLE FOR MAHONING RIVER AT NEW CASTLE, LAWRENCE COUNTY, PA., FROM AUGUST 12, 1914, TO OCTOBER 1, 1915.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
61.00	0.0	.10	525	.20	2900	.30	8824	.40	16512
.10	4.0	.20	575	.30	3010	.40	9072	.50	16760
.20	8.5	.30	630	.40	3125	.50	9320	.60	17008
.30	13.0	.40	685	.50	3240	.60	9568	.70	17256
.40	18	.50	740	.60	3360	.70	9816	.80	17504
.50	23	.60	795	.70	3480	.80	10064	.90	17752
.60	29	.70	850	.80	3600	.90	10312	74.00	18000
.70	35	.80	915	.90	3730	71.00	10560	.10	18248
.80	42	.90	980	68.00	3860	.10	10808	.20	18496
.90	49	65.00	1045	.10	40[illegible]	.20	11056	.30	18744
62.00	57	.10	1110	.20	4150	.30	11304	.40	18992
.10	65	.20	1175	.30	4300	.40	11552	.50	19240
.20	75	.30	1245	.40	4450	.50	11800	.60	19488
.30	85	.40	1315	.50	4610	.60	12048	.70	19736
.40	95	.50	1385	.60	4785	.70	12296	.80	19984
.50	106	.60	1460	.70	4975	.80	12544	.90	20232
.60	118	.70	1540	.80	5175	.90	12792	75.00	20480
.70	131	.80	1620	.90	5375	72.00	13040	.10	20728
.80	145	.90	1700	69.00	5600	.10	13288	.20	20976
.90	162	66.00	1780	.10	5848	.20	13536	.30	21224
63.00	182	.10	1860	.20	6096	.30	13784	.40	21472
.10	202	.20	1945	.30	6344	.40	14032	.50	21720
.20	222	.30	2030	.40	6592	.50	14280	.60	21968
.30	244	.40	2120	.50	6840	.60	14528	.70	22216
.40	266	.50	2210	.60	7088	.70	14776	.80	22464
.50	292	.60	2305	.70	7336	.80	15024	.90	22712
.60	318	.70	2400	.80	7584	.90	15272	76.00	22960
.70	350	.80	2500	.90	7832	73.00	15520		
.80	385	.90	2600	70.00	8080	.10	15768		
.90	430	67.00	2700	.10	8328	.20	16016		
64.00	475	.10	2800	.20	8576	.30	16264		

Note.—This table supersedes that published in the 1914 report. It is based upon 3 discharge measurements taken during 1914-15 together with former curve.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF MAHONING RIVER AT NEW CASTLE, LAWRENCE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	1.96	2.18	2.85	4.15	7.03	4.10	3.58	3.35	2.96	3.15	3.30	2.68
2,	1.98	2.32	4.25	4.65	14.70	4.05	3.50	2.95	3.24	3.18	4.00	3.00
3,	1.92	2.36	4.78	4.45	13.95	3.85	3.45	2.98	3.22	3.62	4.85	2.85
4,	1.95	2.38	4.52	3.95	11.80	3.65	3.28	3.06	3.69	3.95	7.30	2.78
5,	1.99	2.35	4.35	3.75	10.00	3.50	3.15	2.88	3.88	4.37	6.08	2.39
6,	1.99	2.28	4.08	3.65	8.35	3.75	3.58	2.88	3.90	4:19	5.00	2.90
7,	2.00	2.32	4.15	7.85	7.20	3.88	3.52	2.81	3.86	4.20	4.40	2.62
8,	2.00	2.26	4.95	7.85	6.18	3.75	3.48	2.90	3.74	4.60	4.25	2.61
9,	2.00	2.61	5.30	7.65	5.50	4.05	3.55	3.45	3.69	4.71	3.84	3.02
10,	2.04	2.48	5.47	6.50	5.10	4.35	3.53	3.58	3.69	4.68	4.20	3.51
11,	2.04	2.92	5.60	5.75	4.95	4.58	3.65	3.66	3.61	4.59	4.37	3.05
12,	2.28	2.85	5.50	5.15	5.75	4.55	3.52	3.55	3.50	4.62	4.03	2.58
13,	2.34	2.70	5.02	4.95	7.20	4.35	3.85	2.98	3.25	4.73	3.72	2.65
14,	2.75	2.70	4.55	4.55	8.42	4.20	3.82	2.99	3.72	4.50	3.58	2.46
15,	2.70	2.56	3.95	4.35	8.95	4.00	3.72	2.82	3.79	4.34	3.45	2.60
16,	2.85	2.82	3.95	4.85	8.30	4.15	3.56	2.65	4.05	4.36	3.48	2.28
17,	2.85	2.90	3.58	4.55	7.05	4.05	3.28	2.58	4.32	4.30	3.65	2.69
18,	2.88	3.45	3.57	4.90	5.70	4.00	3.36	2.51	4.15	3.88	3.52	2.47
19,	2.91	3.18	2.98	8.20	5.15	3.98	3.15	2.75	3.85	3.82	3.58	3.80
20,	2.65	3.15	3.10	7.45	4.75	3.91	3.12	2.98	3.57	3.66	3.43	3.35
21,	2.75	3.08	3.45	6.25	4.30	3.85	3.06	3.15	2.89	3.31	3.20	3.45
22,	2.45	2.85	3.78	5.15	4.20	3.58	2.92	3.25	2.99	3.24	3.16	3.94
23,	2.48	2.56	3.95	5.55	4.30	3.75	3.02	4.48	2.81	3.05	2.90	3.69
24,	2.40	2.30	3.98	5.80	4.45	3.88	3.22	4.47	2.63	2.92	2.92	3.08
25,	2.44	2.38	3.95	5.65	5.20	3.78	3.29	4.21	2.50	3.21	2.99	3.12
26,	2.35	2.51	3.65	4.65	5.00	3.95	3.18	3.88	2.62	2.98	2.88	2.92
27,	2.30	2.42	3.50	4.58	4.75	3.98	2.95	3.58	2.56	2.68	2.76	3.00
28,	2.26	2.40	3.15	4.25	4.85	4.05	3.22	3.42	2.18	2.70	2.72	3.00
29,	2.30	2.51	3.10	3.95	....	3.85	3.75	3.25	2.56	2.38	2.90	3.85
30,	2.34	2.60	3.75	3.98	....	3.82	3.20	3.10	3.08	2.45	2.95	3.05
31,	2.36	....	4.20	3.94	....	3.78	....	2.95	....	2.50	2.70	....

DAILY DISCHARGE, IN SECOND-FEET, OF MAHONING RIVER AT NEW CASTLE, LAWRENCE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	54	73	154	550	2730	525	312	255	174	212	244	128
2,	55	87	602	822	19740	500	292	172	231	218	475	182
3,	51	91	902	712	17876	408	279	178	226	324	948	154
4,	53	93	751	452	12544	334	240	192	347	452	3010	142
5,	56	90	658	368	8080	292	212	158	421	668	1844	94
6,	56	83	515	334	4375	368	312	158	430	570	1045	162
7,	57	87	550	3665	2900	421	297	147	412	575	685	121
8,	57	81	1012	3665	1928	368	287	162	364	795	602	119
9,	57	119	1245	3420	1385	560	305	279	347	856	403	186
10,	60	104	1364	2210	1110	658	300	312	347	839	575	295
11,	60	166	1460	1580	1012	784	334	337	321	790	668	192
12,	83	154	1385	1142	1580	768	297	305	292	806	485	116
13,	89	131	1068	1012	2900	658	408	178	233	870	357	124
14,	138	131	768	768	4482	575	394	180	357	740	313	102
15,	131	113	452	658	5488	475	357	148	382	652	279	118
16,	154	148	452	658	4300	550	308	124	500	663	287	83
17,	154	162	312	768	2750	500	240	116	641	630	334	130
18,	159	279	310	980	1540	475	257	107	550	421	297	103
19,	164	218	178	4150	1142	466	212	138	408	394	313	385
20,	124	212	202	3182	882	434	206	178	310	337	274	255
21,	138	198	279	1988	630	408	192	212	160	246	222	279
22,	100	154	378	1142	575	312	166	233	180	231	214	448
23,	104	113	452	1422	630	368	186	729	147	192	162	347
24,	95	85	466	1620	712	421	226	723	122	166	166	198
25,	99	93	452	1500	1175	378	242	580	106	224	180	206
26,	90	107	334	822	1245	452	218	421	121	178	159	166
27,	85	97	292	784	882	466	172	312	118	128	139	182
28,	81	95	212	602	948	500	226	271	73	131	134	182
29,	85	107	202	452	....	408	368	233	113	93	162	255
30,	89	118	368	466	....	394	222	202	198	100	172	192
31,	91	....	575	448	....	378	....	172	....	106	131	....

ESTIMATED MONTHLY DISCHARGE OF MAHONING RIVER AT NEW CASTLE, LAWRENCE COUNTY, PA.

(Drainage area 1,070 square miles).

Month.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	164	51	92.5	0.086	0.099
November,	279	73	126	0.118	0.132
December,	1460	154	592	0.553	0.638
1915.					
January,	4150	834	1366	1.277	1.472
February,	19740	575	3769	3.522	3.666
March,	784	292	469	0.438	0.505
April,	408	166	269	0.250	0.279
May,	729	107	255	0.238	0.274
June,	641	73	288	0.269	0.300
July,	870	93	439	0.410	0.473
August,	3010	131	493	0.461	0.532
September,	448	83	188	0.176	0.196
The year,	19740	51	696	0.650	8.566

BEAVER RIVER.

SOURCE—The river is formed by the junction of Mahoning and Shenango rivers, below New Castle, Lawrence County, elevation 763 feet.

TRIBUTARY TO—Ohio River at Rochester, elevation 668 feet.

LENGTH—22 miles.

PROFILE—Slope in feet per mile: Mahoningtown to Beaver Falls, 17.5 miles, 1.6; thence to mouth, 4.5 miles, 12.0.

DRAINAGE AREA—3,040 square miles, of which 1,784 square miles are in Pennsylvania.

TOPOGRAPHY AND DEVELOPMENT—The valley between New Castle and Wampum is broad, while farther down it becomes narrower and is bordered with terraces and rolling hills. The terminal moraine crosses the valley just above the junction of Connoquenessing Creek. This basin contains Beaver Falls and many large boroughs, which use the water of the river extensively for domestic and industrial water supply and water power. It has been proposed to develop navigation on this river from source to mouth as a part of the Lake Erie-Ohio River Ship Canal.

PRINCIPAL TRIBUTARIES—Mahoning and Shenango rivers and Connoquenessing Creek.

PRECIPITATION—35 to 45 inches.

HYDROGRAPHIC DATA—At Newport, Lawrence County from October, 1914, to date.

OHIO BASIN—STATION NO. 42.

BEAVER RIVER AT NEWPORT, LAWRENCE COUNTY, PA.

DESCRIPTION OF STATION.

LOCATION—At highway bridge at Newport, one mile north of Wampum, Pa.

RECORDS AVAILABLE—Discharge complete October 1, 1914, to September 30, 1915.

DRAINAGE AREA—2,125 square miles.

GAGE—A standard chain gage, whose elevation of zero is 737.08 feet above mean sea level, is located on the downstream side of the bridge and is read by Samuel Truby.

CHANNEL—The right bank is high and not subject to overflow, the left bank is subject to overflow at elevation 750.58 feet, and the bed is composed of sand and gravel.

DISCHARGE MEASUREMENTS OF BEAVER RIVER AT NEWPORT, LAWRENCE COUNTY, PA.

(Drainage area 2,125 square miles).

No.	Date.	Hydrographer.	Area.	G. H.	Dis.	Remarks.
	1915.		Sq. ft.	Feet.	Sec.ft	
1	Jan. 18	Munn, ...	1575	6.15	3880	
2	Jan. 19	Munn, ...	2521	10.52	13194	
3	Jan. 19	Munn, ...	2488	10.38	12166	
4	Jan. 19	Munn, ...	2470	10.30	12011	
5	Jan. 20	Munn, ...	2149	8.82	8713	
6	Jan. 20	Munn, ...	2114	8.68	8291	
7	Jan. 20	Munn, ...	2056	8.40	7617	
8	Jan. 21	Munn, ...	1800	7.20	5409	
9	Jan. 21	Munn, ...	1774	7.10	5329	
10	Jan. 21	Munn, ...	1725	6.83	4598	
11	Jan. 21	Munn, ...	1692	6.74	4600	
12	Feb. 4	Munn, ...	3504	14.82	26827	
13	Feb. 4	Munn, ...	3468	14.66	25741	
14	Feb. 4	Munn, ...	3455	14.62	24679	
15	Feb. 5	Munn, ...	3120	13.16	20273	
16	Feb. 5	Munn, ...	3088	13.04	19782	
17	Feb. 10	Munn, ...	1511	5.86	3257	
18	Feb. 10	Munn, ...	1475	5.66	3197	
19	March 13	Brown & Munn, ...	1184	4.28	1650	
20	March 18	Munn, ...	1050	3.62	1206	
21	March 24	Munn, ...	979	3.28	971	
22	April 7	Munn, ...	929	3.02	804	
23	April 10	Munn, ...	889	2.84	687	
24	April 21	Munn, ...	799	2.40	486	
25	May 7	Munn, ...	719	1.98	286	
26	Sept. 16	Munn, ...	669	1.60	171	

*DISCHARGE TABLE FOR BEAVER RIVER AT NEWPORT, LAWRENCE COUNTY, FROM OCTOBER 1, 1914.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.	Feet.	Sec.-ft.
1.00	89	.50	1885	8.00	6930	.50	15180	15.00	27150
.10	94	.60	1975	.10	7120	.60	15460	.10	27560
.20	103	.70	2065	.20	7320	.70	15740	.20	27970
.30	116	.80	2160	.30	7520	.80	16030	.30	28380
.40	132	.90	2255	.40	7720	.90	16320	.40	28790
.50	150	5.00	2355	.50	7930	12.00	16610	.50	29200
.60	172	.10	2455	.60	8140	.10	16900	.60	29610
.70	199	.20	2560	.70	8350	.20	17200	.70	30020
.80	230	.30	2670	.80	8560	.30	17500	.80	30430
.90	264	.40	2785	.90	8780	.40	17800	.90	30840
2.00	300	.50	2905	9.00	9000	.50	18100	16.00	31250
.10	342	.60	3025	.10	9220	.60	18400	.10	31660
.20	386	.70	3150	.20	9440	.70	18710	.20	32070
.30	431	.80	3280	.30	9670	.80	19020	.30	32480
.40	478	.90	3410	.40	9900	.90	19330	.40	32890
.50	526	6.00	3550	.50	10130	13.00	19650	.50	33300
.60	575	.10	3690	.60	10360	.10	19970	.60	33710
.70	626	.20	3835	.70	10590	.20	20300	.70	34120
.80	679	.30	3980	.80	10830	.30	20640	.80	34540
.90	735	.40	4130	.90	11070	.40	20990	.90	34960
3.00	795	.50	4280	10.00	11310	.50	21340	17.00	35380
.10	857	.60	4435	.10	11550	.60	21700	.10	35800
.20	920	.70	4590	.20	11790	.70	22060	.20	36220
.30	985	.80	4750	.30	12040	.80	22430	.30	36640
.40	1051	.90	4910	.40	12290	.90	22810	.40	37060
.50	1118	7.00	5080	.50	12540	14.00	23190	.50	37480
.60	1186	.10	5250	.60	12790	.10	23580	.60	37900
.70	1255	.20	5420	.70	13040	.20	23970	.70	38320
.80	1325	.30	5600	.80	13300	.30	24360	.80	38740
.90	1395	.40	5780	.90	13560	.40	24750	.90	39160
4.00	1470	.50	5960	11.00	13820	.50	25150	18.00	39580
.10	1545	.60	6150	.10	14090	.60	25550	.10	40000
.20	1625	.70	6340	.20	14360	.70	25950		
.30	1710	.80	6530	.30	14630	.80	26350		
.40	1795	.90	6720	.40	14900	.90	26750		

Note.—*This table does not include overflow.

DAILY MEAN GAGE HEIGHTS, IN FEET, OF BEAVER RIVER AT NEWPORT, LAWRENCE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	....	1.47	2.24	4.42	6.56	3.89	3.00	2.44	2.14	2.22	4.21	2.24
2,	....	1.44	4.34	4.32	14.99	3.78	3.02	2.34	2.59	2.22	3.21	2.34
3,	....	1.52	5.20	3.80	16.93	3.42	2.92	2.13	2.36	3.16	4.83	2.32
4,	1.10	1.52	4.70	3.38	14.98	3.01	2.78	2.18	2.94	4.84	10.24	2.20
5,	0.99	1.52	4.24	3.23	12.97	2.72	2.70	2.16	2.86	4.17	8.57	2.03
6,	1.06	1.48	3.94	3.10	10.81	3.24	2.82	2.21	3.00	3.96	7.06	2.08
7,	1.10	1.46	3.82	9.25	9.19	3.26	3.05	1.94	2.51	3.86	4.83	2.02
8,	1.06	1.55	5.12	9.66	8.05	3.21	2.96	2.11	2.55	3.92	4.17	1.89
9,	1.12	1.74	5.94	9.23	6.74	3.54	2.91	2.83	2.58	5.38	4.15	2.14
10,	1.26	1.88	6.02	7.40	5.83	3.76	2.84	3.04	2.55	5.60	4.54	2.34
11,	1.52	2.03	6.15	6.14	5.40	4.38	2.91	2.98	2.48	4.71	4.21	2.18
12,	1.51	2.19	5.87	5.60	6.32	4.42	3.08	2.96	2.27	4.92	4.58	1.94
13,	1.49	2.07	5.20	5.07	9.29	4.18	3.16	2.70	2.15	5.06	4.36	1.92
14,	1.72	2.04	4.55	4.58	10.26	3.90	3.15	2.46	2.40	4.64	4.22	1.82
15,	1.92	2.00	3.72	4.18	11.34	3.72	2.90	2.34	2.65	4.16	3.62	1.74
16,	2.02	2.15	3.27	3.94	10.65	3.96	2.78	2.13	4.17	4.28	3.99	1.62
17,	2.09	2.16	3.15	4.17	8.61	3.83	2.76	2.20	4.49	5.30	4.29	1.71
18,	2.14	2.65	3.18	5.96	6.89	3.58	2.64	2.06	3.56	4.32	3.82	1.68
19,	2.08	2.46	2.75	10.30	5.88	3.40	2.61	2.26	3.14	3.84	3.32	2.98
20,	1.96	2.25	2.68	8.64	5.26	3.26	2.41	2.30	2.64	3.40	3.06	3.62
21,	1.94	2.26	2.88	7.07	4.67	3.26	2.32	2.33	2.31	3.29	2.78	3.41
22,	1.80	1.99	3.48	5.58	4.34	3.02	2.20	2.34	2.04	2.94	2.78	3.32
23,	1.80	2.04	3.69	5.09	4.38	3.18	2.35	4.54	2.08	3.03	2.72	2.83
24,	1.76	1.82	3.56	4.80	4.66	3.29	2.52	4.10	1.79	2.66	2.63	2.40
25,	1.62	1.98	3.42	4.78	5.35	3.28	2.54	3.92	1.78	2.66	2.66	2.26
26,	1.52	1.94	3.06	4.40	5.66	3.70	2.42	3.54	1.86	2.42	2.47	2.18
27,	1.55	1.94	3.32	4.30	4.92	3.91	2.28	3.10	1.69	2.27	2.35	2.38
28	1.44	1.86	2.72	3.96	4.32	3.76	2.58	3.87	1.53	2.09	2.29	2.46
29,	1.46	1.88	2.57	3.65	....	3.40	2.98	2.64	1.57	2.04	2.35	2.56
30,	1.52	1.90	3.05	3.29	....	3.34	2.71	2.35	1.90	2.36	2.42	2.44
31,	1.55	....	4.03	3.23	....	3.19	....	2.32	....	2.22	2.23	....

DAILY DISCHARGE, IN SECOND-FEET, OF BEAVER RIVER AT NEWPORT, LAWRENCE COUNTY, PA., FOR THE YEAR ENDING SEPTEMBER 30, 1915.

DAY.	OCT.	NOV.	DEC.	JAN.	FEB	MAR.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.
1,	††103	145	404	1813	4373	1388	795	497	360	395	1634	404
2,	††110	139	1744	1727	**27420	1311	807	450	570	395	926	450
3,	††104	154	2560	1325	**36922	1064	747	355	459	895	2188	440
4,	94	154	2065	1038	**27420	801	668	377	759	2198	11800	386
5,	88	154	1659	940	19554	637	626	368	713	1601	8077	313
6,	92	146	1425	857	13326	946	690	390	795	1440	5182	334
7,	94	143	1339	9555	9418	959	826	278	531	1367	2188	308
8,	92	160	2476	10498	7020	926	771	346	550	1410	1601	280
9,	96	211	3466	9509	4654	1145	741	696	565	2762	1585	360
10,	111	257	3578	5780	3319	1297	701	820	550	3025	1921	450
11,	154	318	3762	3748	2785	1778	741	783	516	2074	1634	377
12,	152	382	3371	3025	4010	1813	845	771	418	2275	1957	278
13,	148	229	2560	2425	9647	1609	895	626	364	2415	1761	271
14,	205	317	1930	1957	11940	1395	888	507	478	2011	1642	236
15,	271	300	1269	1609	14738	1269	735	450	600	1593	1200	211
16,	308	364	966	1425	12915	1440	668	355	1601	1693	1462	177
17,	338	368	888	1601	8167	1346	658	386	1876	2670	1702	202
18,	360	600	907	3494	4894	1172	595	225	1159	1727	1339	193
19,	334	507	652	12040	3384	1051	580	413	882	1358	998	783
20,	286	408	616	8224	2626	959	483	431	595	1061	832	1200
21,	278	413	724	5199	2038	959	440	445	436	978	668	1058
22,	230	296	1105	3001	1744	807	386	450	317	759	668	998
23,	230	317	1248	2445	1778	907	454	1921	334	814	637	696
24,	217	236	1159	2160	2029	978	536	1545	227	606	590	478
25,	177	293	1064	2141	2728	972	546	1410	224	606	606	413
26,	154	278	826	1795	3100	1255	488	1145	250	488	512	877
27,	160	278	998	1710	2275	1402	422	857	196	418	454	469
28,	139	250	637	1440	1727	1297	565	1374	156	338	426	507
29,	143	257	560	1220	....	1051	783	595	165	317	454	556
30,	154	264	826	978	....	1011	631	454	296	459	488	497
31,	160	....	1492	940	....	914	....	440	....	395	400	....

Notes.—††Estimated. **Corrected for overflow.

ESTIMATED MONTHLY DISCHARGE OF BEAVER RIVER AT NEWPORT, LAWRENCE COUNTY, PA.

(Drainage area 2,125 square miles).

Month.	Discharge in Second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Second-ft. per square mile.	Depth in inches.
1914.					
October,	360	88	180	0.085	0.098
November,	600	139	278	0.131	0.146
December,	3762	404	1557	0.733	0.845
1915.					
January,	12040	857	3407	1.603	1.848
February,	36922	1727	8784	4.134	4.303
March,	1813	637	1157	0.544	0.627
April,	895	336	657	0.309	0.345
May,	1921	225	650	0.306	0.353
June,	1876	156	565	0.266	0.297
July,	3025	317	1308	0.616	0.710
August,	11800	400	1856	0.873	1.007
September,	1200	177	456	0.214	0.239
The year,	36922	88	1738	0.818	10.818

MISCELLANEOUS DISCHARGE MEASUREMENTS OF PENNSYLVANIA STREAMS MADE BETWEEN OCTOBER 1, 1914, AND SEPTEMBER 30, 1915.

Stream.	Location.	Date.	Drainage area above point.	Gage height.	Total discharge.	Discharge per square mile tributary drainage area.	Remarks.
			Sq. Mi.	Feet.	Sec.-ft.	Sec.-ft.	
Codorus Creek,	George St., York,	Jan. 13, 1915,..	222	353.96	7842	35.32	High water measurement.
Connoquenessing Creek,	Ellwood City,	Oct. 2, 1914,..	822	5.70	41	0.050	Measurement at Pa. Power Co. plant; chain gage at dam.
Connoquenessing Creek,	Below junction of Slippery Rock Cr.	Oct. 2, 1914,..	822	....	43	0.052	Measurement at Ellwood City Pumping Plant.
Little Shenango River,	Salem,	Oct. 1, 1914,..	50	1.78	6.8	0.136	At abandoned gaging station.
Little Shenango River,	Salem,	Oct. 14, 1914,..	50	1.97	13.7	0.274	At abandoned gaging station.
Little Shenango River,	Salem,	Dec. 8, 1914,..	50	5.24	148	2.96	At abandoned gaging station.
Little Shenango River,	Salem,	Jan. 19, 1915,..	50	8.60	421	8.42	At abandoned gaging station.
Little Shenango River,	Salem,	Jan. 19, 1915,..	50	8.13	391	7.82	At abandoned gaging station.
Mahoning River,	Edinburg,	Feb. 2, 1915,..	1060	772.86	11890	11.22	Gage heights at Boro. Line bridge, New Castle.
Mahoning River,	Edinburg,	Feb. 9, 1915,..	1060	765.63	1543	1.46	Gage heights at Boro. Line bridge, New Castle.
Mahoning River,	Edinburg,	Mar. 15, 1915,..	1060	764.00	433	0.408	Gage heights at Boro. Line bridge, New Castle.
Turtle Creek,	East Pittsburgh,	Dec. 10, 1914,..	145	2.14	359	2.48	At Cable Avenue Viaduct.
Turtle Creek,	East Pittsburgh,	Sept. 24, 1915,..	145	1.23	36	0.248	At Cable Avenue Viaduct.

⁂

INDEX

HYDROGRAPHIC DATA

Page.
Allegheny River at Franklin, 285
Allegheny River at Freeport, 331
Allegheny River at Kittanning, 304
Allegheny River at Larabee, 249
Analomink Creek at Henryville, 31
Aughwick Creek, 209
Aughwick Creek at Pogue, 210
Avonmore—Kiskiminitas River at, 327
Bald Eagle Creek at Beech Creek, 173
Bald Eagle Creek at Milesburg, 165
Beaver River, 391
Beaver River at Newport, 392
Beech Creek—Bald Eagle Creek at, 173
Bellefonte—Spring Creek near, 169
Bethlehem—Lehigh River at, 46
Binghamton, N. Y.—North Branch Susquehanna River at, 105
Black Lick Creek at Black Lick, 318
Black Lick—Black Lick Creek at, 318
Bloomsburg—Fishing Creek at, 135
"Bobtown"—Dunkard Creek at, 333
Bower—West Branch Susquehanna River at, 144
Bowman Creek at Eatonville, 122
Brandywine Creek at Chadds Ford, 90
Brokenstraw Creek at Youngsville, 256
Brush Creek near Trafford, 353
Brysons Bridge—Conodoguinet Creek at, 231
Buffalo Creek near Lewisburg, 191
Bushkill Creek at Shoemakers, 27
Butler Bridge—Tionesta Creek at, 259
Carlton—French Creek at, 279
Carnegie—Chartiers Creek at, 355
Casselman River at Markleton, 342
Chadds Ford—Brandywine Creek at, 90
Chartiers Creek, 355
Chartiers Creek at Carnegie, 355

Page.
Chest Creek at St. Lu, 141
Clarion River at Clarion, 292
Clarion—Clarion River at, 292
Clearfield—West Branch Susquehanna River at, 147
Clearfield Creek at Dimeling, 149
Conewango Creek at Frewsburg, N. Y., 254
Confluence—Youghiogheny River at, 340
Connellsville—Youghiogheny River at, 346
Connoquenessing Creek at Hazen, 361
Conodoguinet Creek at Brysons Bridge, 231
Conshohocken—Schuylkill River at, 72
Crooked Creek at Hileman's Farm, 308
Cussewago Creek near Meadville, 268
Danville—North Branch Susquehanna River at, 137
Darby Creek at Lansdowne, 78
Delaware River at Port Jervis, N. Y., 23
Delaware River at Riegelsville, N. J., 50
Dewdrop—Kinzua Creek at, 250
Dimeling—Clearfield Creek at, 149
Discharge Measurements—Miscellaneous, 397
Dixon—Tunkhannock Creek at, 120
Driftwood Branch Sinnemahoning Creek at Sterling Run, 157
Dunkard Creek at "Bobtown," 333
East Brook Station—Neshannock Creek at, 357
Eatonville—Bowman Creek at, 122
Fishing Creek at Bloomsburg, 135
Franklin—Allegheny River at, 285
Frankstown Branch Juniata River at Huntingdon, 209
Freeport—Allegheny River at, 331
French Creek at Carlton, 279
French Creek at Kimmeytown, 264
Frewsburg, N. Y.—Conewango Creek at, 254
Graters Ford—Perkiomen Creek at, 66
Greenville—Little Shenango River at, 371
Harrisburg—Susquehanna River at, 235
Hawley—Lackawaxen River at, 7
Hazen—Connoquenessing Creek at, 361
Henryville—Analomink Creek at, 31
Hileman's Farm—Crooked Creek at, 308
Huntingdon—Frankstown Branch Juniata River at, 209
Johnstown—Stony Creek at, 312
Jonestown—Swatara Creek at, 244
Juniata River at Newport, 227
Juniata River, Frankstown Branch at Huntingdon, 209
Juniata River, Raystown Branch at Saxton, 197
Kettle Creek at Leidy, 159
Kimmeytown—French Creek at, 264
Kinzua Creek at Dewdrop, 250
Kishacoquillas Creek at Kulps, 212
Kiskiminitas River at Avonmore, 327
Kittanning—Allegheny River at, 304
Kulps—Kishacoquillas Creek at, 212

Page.
Lackawanna River at Moosic, 124
Lackawaxen River at Hawley, 7
Lackawaxen River at Rowlands, 19
Lansdowne—Darby Creek at, 78
Larabee—Allegheny River at, 249
Laurel Hill Creek at Ursina, 344
Lehigh River at Bethlehem, 46
Lehigh River at Tannery, 43
Leidy—Kettle Creek at, 159
Lewisburg—Buffalo Creek near, 191
Lewisburg—West Branch Susquehanna River at, 193
Little Schuylkill River at Molino, 60
Little Shenango River at Greenville, 371
Lycoming Creek near Trout Run, 181
McMichaels Creek near Stroudsburg, 39
Mahoning River at New Castle, 387
Markleton—Casselman River at, 342
Meadville—Cussewago Creek near, 268
Measurements—Miscellaneous Discharge, 397
Mehoopany Creek near Mehoopany, 117
Mehoopany—Mehoopany Creek near, 117
Milesburg—Bald Eagle Creek at, 165
Miscellaneous Discharge Measurements, 397
Moffatt's Mill—Raccoon Creek at, 363
Molino—Little Schuylkill River at, 60
Monongahela River, 337
Monongahela River at South Brownsville, 338
Monroeton—Towanda Creek at, 108
Moosic—Lackawanna River at, 124
Moshannon Creek at Winburne, 154
Neshannock Creek at East Brook Station, 357
New Castle—Mahoning River at, 387
New Castle—Shenango River at, 383
Newport—Beaver River at, 392
Newport—Juniata River at, 227
North Branch Susquehanna River at Binghamton, N. Y., 105
North Branch Susquehanna River at Danville, 137
North Branch Susquehanna River at Towanda, 106
North Branch Susquehanna River at Wilkes-Barre, 131
Oil Creek at Rouseville, 261
Olmsteds Mill—Yellow Breeches Creek at, 240
Orangeville—Pymatuning Creek below, 375
Perkiomen Creek at Graters Ford, 66
Pine Creek at Waterville, 177
Pocono Creek near Stroudsburg, 35
Pogue—Aughwick Creek at, 210
Pollock's Mill—South Fork Ten Mile Creek at, 335
Port Jervis, N. Y.—Delaware River at, 23
Port Royal—Tuscarora Creek near, 224
Pymatuning Creek below Orangeville, 375
Raccoon Creek, 363
Raccoon Creek at Moffatt's Mill, 363

	Page.
Rattlesnake Brook at Spring Brook,	21
Raystown Branch Juniata River at Saxton,	197
Reading—Schuylkill River at,	62
Red Bank Creek at St. Charles,	300
Renovo—West Branch Susquehanna River at,	161
Riegelsville, N. J.—Delaware River at,	50
Rouseville—Oil Creek at,	261
Rowlands—Lackawaxen River at,	19
Sandy Creek at Sandy Lake,	287
Sandy Lake—Sandy Creek at,	287
Saxton—Raystown Branch Juniata River at,	197
Schuylkill Haven—Schuylkill River at,	54
Schuylkill River at Conshohocken,	72
Schuylkill River at Reading,	62
Schuylkill River at Schuylkill Haven,	54
Selinsgrove—Susquehanna River at,	195
Sharon—Shenango River at,	379
Shenango River at New Castle,	383
Shenango River at Sharon,	379
Shenango River at Turnerville,	365
Shoemakers—Bushkill Creek at,	27
Sinnemahoning Creek, Driftwood Branch, at Sterling Run,	157
Slippery Rock Creek at Wurtemburg,	358
South Brownsville—Monongahela River at,	338
South Fork Ten Mile Creek,	335
South Fork Ten Mile Creek at Pollock's Mill,	335
Spring Brook—Rattlesnake Brook at,	21
Spring Creek near Bellefonte,	169
St. Charles—Red Bank Creek at,	300
Sterling Run—Driftwood Branch Sinnemahoning Creek at,	157
St. Lu—Chest Creek at,	141
Stony Creek at Johnstown,	312
Stroudsburg—McMichaels Creek near,	39
Stroudsburg—Pocono Creek near,	35
Sugar Creek at Wyattville,	282
Susquehanna River, North Branch, at Binghamton, N. Y.,	105
Susquehanna River, North Branch, at Danville,	137
Susquehanna River, North Branch, at Towanda,	106
Susquehanna River, North Branch, at Wilkes-Barre,	131
Susquehanna River at Harrisburg,	235
Susquehanna River at Selinsgrove,	195
Susquehanna River, West Branch, at Bower,	144
Susquehanna River, West Branch, at Clearfield,	147
Susquehanna River, West Branch, at Lewisburg,	193
Susquehanna River, West Branch, at Renovo,	161
Susquehanna River, West Branch, at Williamsport,	187
Sutersville—Youghiogheny River at,	350
Swatara Creek at Jonestown,	244
Tannery—Lehigh River at,	43
Ten Mile Creek, South Fork,	335
Ten Mile Creek, South Fork, at Pollock's Mill,	335
Tionesta Creek at Butler Bridge,	259

	Page.
Towanda—North Branch Susquehanna River at,	106
Towanda Creek at Monroeton,	108
Trafford—Brush Creek near,	353
Trafford—Turtle Creek near,	352
Trout Run—Lycoming Creek near,	181
Tunkhannock Creek at Dixon,	120
Turnerville—Shenango River at,	365
Turtle Creek near Trafford,	352
Tuscarora Creek near Port Royal,	224
Ursina—Laurel Hill Creek at,	344
Wallenpaupack Creek at Wilsonville,	11
Waterville—Pine Creek at,	177
West Branch, Susquehanna River, at Bower,	144
West Branch, Susquehanna River, at Clearfield,	147
West Branch, Susquehanna River, at Lewisburg,	193
West Branch, Susquehanna River, at Renovo,	161
West Branch, Susquehanna River, at Williamsport,	187
Wilkes-Barre—North Branch Susquehanna River at,	131
Williamsport—West Branch Susquehanna River at,	187
Wilsonville, Wallenpaupack Creek at,	11
Winburne—Moshannon Creek at,	154
Wurtemburg—Slippery Rock Creek at,	358
Wyalusing Creek at Wyalusing,	113
Wyalusing—Wyalusing Creek at,	113
Wyattville—Sugar Creek at,	282
Yellow Breeches Creek at Olmsteds Mill,	240
Youghiogheny River at Confluence,	340
Youghiogheny River at Connellsville,	346
Youghiogheny River at Sutersville,	350
Youngsville—Brokenstraw Creek at,	256

This book should be returned to the Library on or before the last date stamped below.

A fine of five cents a day is incurred by retaining it beyond the specified time.

Please return promptly.

3 2044 103 131 538